# FOUR PLACE TABLES

UNABRIDGED EDITION

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# Conversion Tables

| ′ | ° |
|---|---|
| 0′ | =0°.00 000 |
| 1′ | .01 666.. |
| 2′ | .03 333.. |
| 3′ | .05 |
| 4′ | .06 666.. |
| 5′ | .08 333.. |
| 6′ | .10 |
| 7′ | .11 666.. |
| 8′ | .13 333.. |
| 9′ | .15 |
| 10′ | 0°.16 666.. |
| 1 | .18 333.. |
| 2 | .20 |
| 3 | .21 666.. |
| 4 | .23 333.. |
| 15′ | .25 |
| 6 | .26 666.. |
| 7 | .28 333.. |
| 8 | .30 |
| 9 | .31 666.. |
| 20′ | 0°.33 333.. |
| 1 | .35 |
| 2 | .36 666.. |
| 3 | .38 333.. |
| 4 | .40 |
| 25′ | .41 666.. |
| 6 | .43 333.. |
| 7 | .45 |
| 8 | .46 666.. |
| 9 | .48 333.. |
| 30′ | 0°.50 |
| 1 | .51 666.. |
| 2 | .53 333.. |
| 3 | .55 |
| 4 | .56 666.. |
| 35′ | .58 333.. |
| 6 | .60 |
| 7 | .61 666.. |
| 8 | .63 333.. |
| 9 | .65 |
| 40′ | 0°.66 666.. |
| 1 | .68 333.. |
| 2 | .70 |
| 3 | .71 666.. |
| 4 | .73 333.. |
| 45′ | .75 |
| 6 | .76 666.. |
| 7 | .78 333.. |
| 8 | .80 |
| 9 | .81 666.. |
| 50′ | 0°.83 333.. |
| 1 | .85 |
| 2 | .86 666.. |
| 3 | .88 333.. |
| 4 | .90 |
| 55′ | .91 666.. |
| 6 | .93 333.. |
| 7 | .95 |
| 8 | .96 666.. |
| 9 | .98 333.. |
| 60′ | 1°.00 |

| ″ | ° |
|---|---|
| 0″ | =0°.00 000 |
| 1″ | .00 027.. |
| 2″ | .00 055.. |
| 3″ | .00 083.. |
| 4″ | .00 111.. |
| 5″ | .00 138.. |
| 6″ | .00 166.. |
| 7″ | .00 194.. |
| 8″ | .00 222.. |
| 9″ | .00 25 |
| 10″ | 0°.00 277.. |
| 1 | .00 305.. |
| 2 | .00 333.. |
| 3 | .00 361.. |
| 4 | .00 388.. |
| 15″ | .00 416.. |
| 6 | .00 444.. |
| 7 | .00 472.. |
| 8 | .00 5 |
| 9 | .00 527.. |
| 20″ | 0°.00 555.. |
| 1 | .00 583.. |
| 2 | .00 611.. |
| 3 | .00 638.. |
| 4 | .00 666.. |
| 25″ | .00 694.. |
| 6 | .00 722.. |
| 7 | .00 75 |
| 8 | .00 777.. |
| 9 | .00 805.. |
| 30″ | 0°.00 833.. |
| 1 | .00 861.. |
| 2 | .00 888.. |
| 3 | .00 916.. |
| 4 | .00 944.. |
| 35″ | .00 972.. |
| 6 | .01 |
| 7 | .01 027.. |
| 8 | .01 055.. |
| 9 | .01 083.. |
| 40″ | 0°.01 111.. |
| 1 | .01 138.. |
| 2 | .01 166.. |
| 3 | .01 194.. |
| 4 | .01 222.. |
| 45″ | .01 25 |
| 6 | .01 277.. |
| 7 | .01 305.. |
| 8 | .01 333.. |
| 9 | .01 361.. |
| 50″ | 0°.01 388.. |
| 1 | .01 416.. |
| 2 | .01 444.. |
| 3 | .01 472.. |
| 4 | .01 5 |
| 55″ | .01 527.. |
| 6 | .01 555.. |
| 7 | .01 583.. |
| 8 | .01 611.. |
| 9 | .01 638.. |
| 60″ | 0°.01 666.. |

The dots (..) indicate that the last figure repeats indefinitely.

1°=0.01 745 329 radians
1′=0.00 029 088 8 radians
1″=0.00 000 484 814 radians

## From Decimal Parts of a Degree into Minutes and Seconds

*(Exact Values)*

| | | | |
|---|---|---|---|
| 0°.00 | =0′00″ | 0°.50 | =30′ |
| 1 | 0′36″ | 1 | 30′36″ |
| 2 | 1′12″ | 2 | 31′12″ |
| 3 | 1′48″ | 3 | 31′48″ |
| 4 | 2′24″ | 4 | 32′24″ |
| 0°.05 | 3′ | 0°.55 | 33′ |
| 6 | 3′36″ | 6 | 33′36″ |
| 7 | 4′12″ | 7 | 34′12″ |
| 8 | 4′48″ | 8 | 34′48″ |
| 9 | 5′24″ | 9 | 35′24″ |
| 0°.10 | 6′ | 0°.60 | 36′ |
| 1 | 6′36″ | 1 | 36′36″ |
| 2 | 7′12″ | 2 | 37′12″ |
| 3 | 7′48″ | 3 | 37′48″ |
| 4 | 8′24″ | 4 | 38′24″ |
| 0°.15 | 9′ | 0°.65 | 39′ |
| 6 | 9′36″ | 6 | 39′36″ |
| 7 | 10′12″ | 7 | 40′12″ |
| 8 | 10′48″ | 8 | 40′48″ |
| 9 | 11′24″ | 9 | 41′24″ |
| 0°.20 | 12′ | 0°.70 | 42′ |
| 1 | 12′36″ | 1 | 42′36″ |
| 2 | 13′12″ | 2 | 43′12″ |
| 3 | 13′48″ | 3 | 43′48″ |
| 4 | 14′24″ | 4 | 44′24″ |
| 0°.25 | 15′ | 0°.75 | 45′ |
| 6 | 15′36″ | 6 | 45′36″ |
| 7 | 16′12″ | 7 | 46′12″ |
| 8 | 16′48″ | 8 | 46′48″ |
| 9 | 17′24″ | 9 | 47′24″ |
| 0°.30 | 18′ | 0°.80 | 48′ |
| 1 | 18′36″ | 1 | 48′36″ |
| 2 | 19′12″ | 2 | 49′12″ |
| 3 | 19′48″ | 3 | 49′48″ |
| 4 | 20′24″ | 4 | 50′24″ |
| 0°.35 | 21′ | 0°.85 | 51′ |
| 6 | 21′36″ | 6 | 51′36″ |
| 7 | 22′12″ | 7 | 52′12″ |
| 8 | 22′48″ | 8 | 52′48″ |
| 9 | 23′24″ | 9 | 53′24″ |
| 0°.40 | 24′ | 0°.90 | 54′ |
| 1 | 24′36″ | 1 | 54′36″ |
| 2 | 25′12″ | 2 | 55′12″ |
| 3 | 25′48″ | 3 | 55′48″ |
| 4 | 26′24″ | 4 | 56′24″ |
| 0°.45 | 27′ | 0°.95 | 57′ |
| 6 | 27′36″ | 6 | 57′36″ |
| 7 | 28′12″ | 7 | 58′12″ |
| 8 | 28′48″ | 8 | 58′48″ |
| 9 | 29′24″ | 9 | 59′24″ |
| 0°.50 | 30′ | 1°.00 | 60′ |

| | |
|---|---|
| 0°.000 | =0″.0 |
| 1 | 3″.6 |
| 2 | 7″.2 |
| 3 | 10″.8 |
| 4 | 14″.4 |
| 0°.005 | 18″. |
| 6 | 21″.6 |
| 7 | 25″.2 |
| 8 | 28″.8 |
| 9 | 32″.4 |
| 0°.010 | 36″. |

## Decimal Equivalents of Common Fractions

*(Exact Values)*

| | | | |
|---|---|---|---|
| | | 1/64 | .01 5625 |
| | 1/32 | | .03 125 |
| | | 3/64 | .04 6875 |
| 1/16 | | | .06 25 |
| | | 5/64 | .07 8125 |
| | 3/32 | | .09 375 |
| | | 7/64 | .10 9375 |
| 1/8 | | | .12 5 |
| | | 9/64 | .14 0625 |
| | 5/32 | | .15 625 |
| | | 11/64 | .17 1875 |
| 3/16 | | | .18 75 |
| | | 13/64 | .20 3125 |
| | 7/32 | | .21 875 |
| | | 15/64 | .23 4375 |
| 1/4 | | | .25 |
| | | 17/64 | .26 5625 |
| | 9/32 | | .28 125 |
| | | 19/64 | .29 6875 |
| 5/16 | | | .31 25 |
| | | 21/64 | .32 8125 |
| | 11/32 | | .34 375 |
| | | 23/64 | .35 9375 |
| 3/8 | | | .37 5 |
| | | 25/64 | .39 0625 |
| | 13/32 | | .40 625 |
| | | 27/64 | .42 1875 |
| 7/16 | | | .43 75 |
| | | 29/64 | .45 3125 |
| | 15/32 | | .46 875 |
| | | 31/64 | .48 4375 |
| 1/2 | | | .50 |
| | | 33/64 | .51 5625 |
| | 17/32 | | .53 125 |
| | | 35/64 | .54 6875 |
| 9/16 | | | .56 25 |
| | | 37/64 | .57 8125 |
| | 19/32 | | .59 375 |
| | | 39/64 | .60 9375 |
| 5/8 | | | .62 5 |
| | | 41/64 | .64 0625 |
| | 21/32 | | .65 625 |
| | | 43/64 | .67 1875 |
| 11/16 | | | .68 75 |
| | | 45/64 | .70 3125 |
| | 23/32 | | .71 875 |
| | | 47/64 | .73 4375 |
| 3/4 | | | .75 |
| | | 49/64 | .76 5625 |
| | 25/32 | | .78 125 |
| | | 51/64 | .79 6875 |
| 13/16 | | | .81 25 |
| | | 53/64 | .82 8125 |
| | 27/32 | | .84 375 |
| | | 55/64 | .85 9375 |
| 7/8 | | | .87 5 |
| | | 57/64 | .89 0625 |
| | 29/32 | | .90 625 |
| | | 59/64 | .92 1875 |
| 15/16 | | | .93 75 |
| | | 61/64 | .95 3125 |
| | 31/32 | | .96 875 |
| | | 63/64 | .98 4375 |

1 radian=57°.29578

# FOUR PLACE TABLES

## OF LOGARITHMS AND TRIGONOMETRIC FUNCTIONS

WITH AUXILIARY TABLES (CHIEFLY TO THREE FIGURES) OF
SQUARES, SQUARE ROOTS, CUBES, CUBE ROOTS, RECIPROCALS
CIRCUMFERENCES AND AREAS OF CIRCLES, EXPONENTIALS
NATURAL LOGARITHMS, RADIANS, AND CONSTANTS

Unabridged Edition

COMPILED BY

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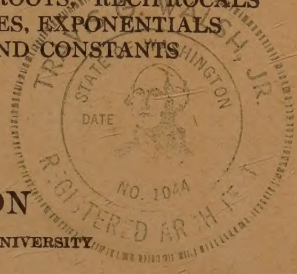


DESCRIPTIVE NOTE. — In these tables, angles are expressed in degrees and decimal parts of a degree, instead of in degrees, minutes, and seconds. A conversion table is provided.

All the values of any one function, from 0° to 90°, will be found at one opening of the book; there are also special tables for small angles and angles near 90°. The arrangement of the page is uniform, — the first figures of the argument being given at the side of the page, and the last figure along the top. Moreover, the function always increases reading to the right, and decreases reading to the left, so that a frequent cause of error in interpolating is avoided.

The sign ∫ indicates a point where the first figure of the function changes in the middle of a line. The negative characteristics, $\bar{1}$, $\bar{2}$, etc., may be modified into 9–10, 8–10, etc., if preferred.

To facilitate interpolation, the tenths of the tabular differences are given at the end of each line, so that the actual differences themselves need not be considered. In using these aids, first find the nearest tabular entry, and then add (to move to the right) or subtract (to move to the left), as the case may require. Any interpolated value may be in error by one unit in the last place; wherever the errors of interpolation may be greater than this, warning is given in the margin.

A marginal index is provided throughout the table. In using the tabs at the side of the page, put the thumb on the desired tab and throw the free pages over; do not insert the fingers under these tabs. The special tabs at the upper and lower edges of the page make it possible to manipulate the logarithmic part of the table entirely with the left hand, the book lying flat on the desk; to turn forward, insert the thumb under the required tab at bottom of page; to turn backward, insert the finger under the required tab at top of page.

HOUGHTON MIFFLIN COMPANY

BOSTON · NEW YORK · CHICAGO · DALLAS · SAN FRANCISCO

The Riverside Press Cambridge

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# Squares

(Moving the decimal point ONE place in $n$ is equivalent to moving it TWO places in $n^2$)

| $n$ | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.0 | 1.000 | 1.020 | 1.040 | 1.061 | 1.082 | 1.103 | 1.124 | 1.145 | 1.166 | 1.188 | 1.210 | 2 | 4 | 6 | 8 | 10 |
| 1.1 | 1.210 | 1.232 | 1.254 | 1.277 | 1.300 | 1.323 | 1.346 | 1.369 | 1.392 | 1.416 | 1.440 | 2 | 5 | 7 | 9 | 11 |
| 1.2 | 1.440 | 1.464 | 1.488 | 1.513 | 1.538 | 1.563 | 1.588 | 1.613 | 1.638 | 1.664 | 1.690 | 2 | 5 | 7 | 10 | 12 |
| 1.3 | 1.690 | 1.716 | 1.742 | 1.769 | 1.796 | 1.823 | 1.850 | 1.877 | 1.904 | 1.932 | 1.960 | 3 | 5 | 8 | 11 | 13 |
| 1.4 | 1.960 | 1.988 | 2.016 | 2.045 | 2.074 | 2.103 | 2.132 | 2.161 | 2.190 | 2.220 | 2.250 | 3 | 6 | 9 | 12 | 14 |
| 1.5 | 2.250 | 2.280 | 2.310 | 2.341 | 2.372 | 2.403 | 2.434 | 2.465 | 2.496 | 2.528 | 2.560 | 3 | 6 | 9 | 12 | 15 |
| 1.6 | 2.560 | 2.592 | 2.624 | 2.657 | 2.690 | 2.723 | 2.756 | 2.789 | 2.822 | 2.856 | 2.890 | 3 | 7 | 10 | 13 | 16 |
| 1.7 | 2.890 | 2.924 | 2.958 | 2.993 | 3.028 | 3.063 | 3.098 | 3.133 | 3.168 | 3.204 | 3.240 | 3 | 7 | 10 | 14 | 17 |
| 1.8 | 3.240 | 3.276 | 3.312 | 3.349 | 3.386 | 3.423 | 3.460 | 3.497 | 3.534 | 3.572 | 3.610 | 4 | 7 | 11 | 15 | 18 |
| 1.9 | 3.61 | 3.65 | 3.69 | 3.72 | 3.76 | 3.80 | 3.84 | 3.88 | 3.92 | 3.96 | 4.00 | 0 | 1 | 1 | 2 | 2 |
| 2.0 | 4.00 | 4.04 | 4.08 | 4.12 | 4.16 | 4.20 | 4.24 | 4.28 | 4.33 | 4.37 | 4.41 | 0 | 1 | 1 | 2 | 2 |
| 2.1 | 4.41 | 4.45 | 4.49 | 4.54 | 4.58 | 4.62 | 4.67 | 4.71 | 4.75 | 4.80 | 4.84 | 0 | 1 | 1 | 2 | 2 |
| 2.2 | 4.84 | 4.88 | 4.93 | 4.97 | 5.02 | 5.06 | 5.11 | 5.15 | 5.20 | 5.24 | 5.29 | 0 | 1 | 1 | 2 | 2 |
| 2.3 | 5.29 | 5.34 | 5.38 | 5.43 | 5.48 | 5.52 | 5.57 | 5.62 | 5.66 | 5.71 | 5.76 | 0 | 1 | 1 | 2 | 2 |
| 2.4 | 5.76 | 5.81 | 5.86 | 5.90 | 5.95 | 6.00 | 6.05 | 6.10 | 6.15 | 6.20 | 6.25 | 0 | 1 | 1 | 2 | 2 |
| 2.5 | 6.25 | 6.30 | 6.35 | 6.40 | 6.45 | 6.50 | 6.55 | 6.60 | 6.66 | 6.71 | 6.76 | 1 | 1 | 2 | 2 | 3 |
| 2.6 | 6.76 | 6.81 | 6.86 | 6.92 | 6.97 | 7.02 | 7.08 | 7.13 | 7.18 | 7.24 | 7.29 | 1 | 1 | 2 | 2 | 3 |
| 2.7 | 7.29 | 7.34 | 7.40 | 7.45 | 7.51 | 7.56 | 7.62 | 7.67 | 7.73 | 7.78 | 7.84 | 1 | 1 | 2 | 2 | 3 |
| 2.8 | 7.84 | 7.90 | 7.95 | 8.01 | 8.07 | 8.12 | 8.18 | 8.24 | 8.29 | 8.35 | 8.41 | 1 | 1 | 2 | 2 | 3 |
| 2.9 | 8.41 | 8.47 | 8.53 | 8.58 | 8.64 | 8.70 | 8.76 | 8.82 | 8.88 | 8.94 | 9.00 | 1 | 1 | 2 | 2 | 3 |
| 3.0 | 9.00 | 9.06 | 9.12 | 9.18 | 9.24 | 9.30 | 9.36 | 9.42 | 9.49 | 9.55 | 9.61 | 1 | 1 | 2 | 2 | 3 |
| 3.1 | 9.61 | 9.67 | 9.73 | 9.80 | 9.86 | 9.92 | 9.99 | 10.05 | 10.11 | 10.18 | 10.24 | 1 | 1 | 2 | 3 | 3 |
| 3.2 | 10.24 | 10.30 | 10.37 | 10.43 | 10.50 | 10.56 | 10.63 | 10.69 | 10.76 | 10.82 | 10.89 | 1 | 1 | 2 | 3 | 3 |
| 3.3 | 10.89 | 10.96 | 11.02 | 11.09 | 11.16 | 11.22 | 11.29 | 11.36 | 11.42 | 11.49 | 11.56 | 1 | 1 | 2 | 3 | 3 |
| 3.4 | 11.56 | 11.63 | 11.70 | 11.76 | 11.83 | 11.90 | 11.97 | 12.04 | 12.11 | 12.18 | 12.25 | 1 | 1 | 2 | 3 | 3 |
| 3.5 | 12.25 | 12.32 | 12.39 | 12.46 | 12.53 | 12.60 | 12.67 | 12.74 | 12.82 | 12.89 | 12.96 | 1 | 1 | 2 | 3 | 4 |
| 3.6 | 12.96 | 13.03 | 13.10 | 13.18 | 13.25 | 13.32 | 13.40 | 13.47 | 13.54 | 13.62 | 13.69 | 1 | 1 | 2 | 3 | 4 |
| 3.7 | 13.69 | 13.76 | 13.84 | 13.91 | 13.99 | 14.06 | 14.14 | 14.21 | 14.29 | 14.36 | 14.44 | 1 | 1 | 2 | 3 | 4 |
| 3.8 | 14.44 | 14.52 | 14.59 | 14.67 | 14.75 | 14.82 | 14.90 | 14.98 | 15.05 | 15.13 | 15.21 | 1 | 2 | 2 | 3 | 4 |
| 3.9 | 15.21 | 15.29 | 15.37 | 15.44 | 15.52 | 15.60 | 15.68 | 15.76 | 15.84 | 15.92 | 16.00 | 1 | 2 | 2 | 3 | 4 |
| 4.0 | 16.00 | 16.08 | 16.16 | 16.24 | 16.32 | 16.40 | 16.48 | 16.56 | 16.65 | 16.73 | 16.81 | 1 | 2 | 2 | 3 | 4 |
| 4.1 | 16.81 | 16.89 | 16.97 | 17.06 | 17.14 | 17.22 | 17.31 | 17.39 | 17.47 | 17.56 | 17.64 | 1 | 2 | 2 | 3 | 4 |
| 4.2 | 17.64 | 17.72 | 17.81 | 17.89 | 17.98 | 18.06 | 18.15 | 18.23 | 18.32 | 18.40 | 18.49 | 1 | 2 | 3 | 3 | 4 |
| 4.3 | 18.49 | 18.58 | 18.66 | 18.75 | 18.84 | 18.92 | 19.01 | 19.10 | 19.18 | 19.27 | 19.36 | 1 | 2 | 3 | 3 | 4 |
| 4.4 | 19.36 | 19.45 | 19.54 | 19.62 | 19.71 | 19.80 | 19.89 | 19.98 | 20.07 | 20.16 | 20.25 | 1 | 2 | 3 | 4 | 4 |
| 4.5 | 20.25 | 20.34 | 20.43 | 20.52 | 20.61 | 20.70 | 20.79 | 20.88 | 20.98 | 21.07 | 21.16 | 1 | 2 | 3 | 4 | 5 |
| 4.6 | 21.16 | 21.25 | 21.34 | 21.44 | 21.53 | 21.62 | 21.72 | 21.81 | 21.90 | 22.00 | 22.09 | 1 | 2 | 3 | 4 | 5 |
| 4.7 | 22.09 | 22.18 | 22.28 | 22.37 | 22.47 | 22.56 | 22.66 | 22.75 | 22.85 | 22.94 | 23.04 | 1 | 2 | 3 | 4 | 5 |
| 4.8 | 23.04 | 23.14 | 23.23 | 23.33 | 23.43 | 23.52 | 23.62 | 23.72 | 23.81 | 23.91 | 24.01 | 1 | 2 | 3 | 4 | 5 |
| 4.9 | 24.01 | 24.11 | 24.21 | 24.30 | 24.40 | 24.50 | 24.60 | 24.70 | 24.80 | 24.90 | 25.00 | 1 | 2 | 3 | 4 | 5 |
| 5.0 | 25.00 | 25.10 | 25.20 | 25.30 | 25.40 | 25.50 | 25.60 | 25.70 | 25.81 | 25.91 | 26.01 | 1 | 2 | 3 | 4 | 5 |
| 5.1 | 26.01 | 26.11 | 26.21 | 26.32 | 26.42 | 26.52 | 26.63 | 26.73 | 26.83 | 26.94 | 27.04 | 1 | 2 | 3 | 4 | 5 |
| 5.2 | 27.04 | 27.14 | 27.25 | 27.35 | 27.46 | 27.56 | 27.67 | 27.77 | 27.88 | 27.98 | 28.09 | 1 | 2 | 3 | 4 | 5 |
| 5.3 | 28.09 | 28.20 | 28.30 | 28.41 | 28.52 | 28.62 | 28.73 | 28.84 | 28.94 | 29.05 | 29.16 | 1 | 2 | 3 | 4 | 5 |
| 5.4 | 29.16 | 29.27 | 29.38 | 29.48 | 29.59 | 29.70 | 29.81 | 29.92 | 30.03 | 30.14 | 30.25 | 1 | 2 | 3 | 4 | 5 |
| 5.5 | 30.25 | 30.36 | 30.47 | 30.58 | 30.69 | 30.80 | 30.91 | 31.02 | 31.14 | 31.25 | 31.36 | 1 | 2 | 3 | 4 | 6 |
| 5.6 | 31.36 | 31.47 | 31.58 | 31.70 | 31.81 | 31.92 | 32.04 | 32.15 | 32.26 | 32.38 | 32.49 | 1 | 2 | 3 | 5 | 6 |
| 5.7 | 32.49 | 32.60 | 32.72 | 32.83 | 32.95 | 33.06 | 33.18 | 33.29 | 33.41 | 33.52 | 33.64 | 1 | 2 | 3 | 5 | 6 |
| 5.8 | 33.64 | 33.76 | 33.87 | 33.99 | 34.11 | 34.22 | 34.34 | 34.46 | 34.57 | 34.69 | 34.81 | 1 | 2 | 4 | 5 | 6 |
| 5.9 | 34.81 | 34.93 | 35.05 | 35.16 | 35.28 | 35.40 | 35.52 | 35.64 | 35.76 | 35.88 | 36.00 | 1 | 2 | 4 | 5 | 6 |
| 6. | 36.0 | 37.2 | 38.4 | 39.7 | 41.0 | 42.3 | 43.6 | 44.9 | 46.2 | 47.6 | 49.0 | 1 | 3 | 4 | 5 | 6 |
| 7. | 49.0 | 50.4 | 51.8 | 53.3 | 54.8 | 56.3 | 57.8 | 59.3 | 60.8 | 62.4 | 64.0 | 1 | 3 | 4 | 6 | 7 |
| 8. | 64.0 | 65.6 | 67.2 | 68.9 | 70.6 | 72.3 | 74.0 | 75.7 | 77.4 | 79.2 | 81.0 | 2 | 3 | 5 | 7 | 8 |
| 9. | 81.0 | 82.8 | 84.6 | 86.5 | 88.4 | 90.3 | 92.2 | 94.1 | 96.0 | 98.0 | 100.0 | 2 | 4 | 6 | 8 | 9 |

$\pi^2 = 9.870$ (2) $1/\pi^2 = 0.10132$

# Square Roots

(Moving the decimal point TWO places in $n$ is equivalent to moving it ONE place in $\sqrt{n}$)

| $n$ | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1 | .316 | .332 | .346 | .361 | .374 | .387 | | | | | | 1 | 3 | 4 | 6 | 7 |
| | | | | | | .387 | .400 | .412 | .424 | .436 | .447 | 1 | 2 | 4 | 5 | 6 |
| .2 | .447 | .458 | .469 | .480 | .490 | .500 | .510 | .520 | .529 | .539 | .548 | 1 | 2 | 3 | 4 | 5 |
| .3 | .548 | .557 | .566 | .574 | .583 | .592 | .600 | .608 | .616 | .624 | .632 | 1 | 2 | 3 | 3 | 4 |
| .4 | .632 | .640 | .648 | .656 | .663 | .671 | .678 | .686 | .693 | .700 | .707 | 1 | 1 | 2 | 3 | 4 |
| .5 | .707 | .714 | .721 | .728 | .735 | .742 | .748 | .755 | .762 | .768 | .775 | 1 | 1 | 2 | 3 | 3 |
| .6 | .775 | .781 | .787 | .794 | .800 | .806 | .812 | .819 | .825 | .831 | .837 | 1 | 1 | 2 | 2 | 3 |
| .7 | .837 | .843 | .849 | .854 | .860 | .866 | .872 | .877 | .883 | .889 | .894 | 1 | 1 | 2 | 2 | 3 |
| .8 | .894 | .900 | .906 | .911 | .917 | .922 | .927 | .933 | .938 | .943 | 0.949 | 1 | 1 | 2 | 2 | 3 |
| .9 | 0.949 | 0.954 | 0.959 | 0.964 | 0.970 | 0.975 | 0.980 | 0.985 | 0.990 | 0.995 | 1.000 | 1 | 1 | 2 | 2 | 3 |
| 1.0 | 1.000 | 1.005 | 1.010 | 1.015 | 1.020 | 1.025 | 1.030 | 1.034 | 1.039 | 1.044 | 1.049 | 0 | 1 | 1 | 2 | 2 |
| 1.1 | 1.049 | 1.054 | 1.058 | 1.063 | 1.068 | 1.072 | 1.077 | 1.082 | 1.086 | 1.091 | 1.095 | 0 | 1 | 1 | 2 | 2 |
| 1.2 | 1.095 | 1.100 | 1.105 | 1.109 | 1.114 | 1.118 | 1.122 | 1.127 | 1.131 | 1.136 | 1.140 | 0 | 1 | 1 | 2 | 2 |
| 1.3 | 1.140 | 1.145 | 1.149 | 1.153 | 1.158 | 1.162 | 1.166 | 1.170 | 1.175 | 1.179 | 1.183 | 0 | 1 | 1 | 2 | 2 |
| 1.4 | 1.183 | 1.187 | 1.192 | 1.196 | 1.200 | 1.204 | 1.208 | 1.212 | 1.217 | 1.221 | 1.225 | 0 | 1 | 1 | 2 | 2 |
| 1.5 | 1.225 | 1.229 | 1.233 | 1.237 | 1.241 | 1.245 | 1 249 | 1.253 | 1.257 | 1.261 | 1.265 | 0 | 1 | 1 | 2 | 2 |
| 1.6 | 1.265 | 1.269 | 1.273 | 1.277 | 1.281 | 1.285 | 1.288 | 1.292 | 1.296 | 1.300 | 1.304 | 0 | 1 | 1 | 2 | 2 |
| 1.7 | 1.304 | 1.308 | 1.311 | 1.315 | 1.319 | 1.323 | 1.327 | 1.330 | 1.334 | 1.338 | 1.342 | 0 | 1 | 1 | 2 | 2 |
| 1.8 | 1.342 | 1.345 | 1.349 | 1.353 | 1.356 | 1.360 | 1.364 | 1.367 | 1.371 | 1.375 | 1.378 | 0 | 1 | 1 | 1 | 2 |
| 1.9 | 1.378 | 1.382 | 1.386 | 1.389 | 1.393 | 1.396 | 1.400 | 1.404 | 1.407 | 1.411 | 1.414 | 0 | 1 | 1 | 1 | 2 |
| 2.0 | 1.414 | 1.418 | 1.421 | 1.425 | 1.428 | 1.432 | 1.435 | 1.439 | 1.442 | 1.446 | 1.449 | 0 | 1 | 1 | 1 | 2 |
| 2.1 | 1.449 | 1.453 | 1.456 | 1.459 | 1.463 | 1.466 | 1.470 | 1.473 | 1.476 | 1.480 | 1.483 | 0 | 1 | 1 | 1 | 2 |
| 2.2 | 1.483 | 1.487 | 1.490 | 1.493 | 1.497 | 1.500 | 1.503 | 1.507 | 1.510 | 1.513 | 1.517 | 0 | 1 | 1 | 1 | 2 |
| 2.3 | 1.517 | 1.520 | 1.523 | 1.526 | 1.530 | 1.533 | 1.536 | 1.539 | 1.543 | 1.546 | 1.549 | 0 | 1 | 1 | 1 | 2 |
| 2.4 | 1.549 | 1.552 | 1.556 | 1.559 | 1.562 | 1.565 | 1.568 | 1.572 | 1.575 | 1.578 | 1.581 | 0 | 1 | 1 | 1 | 2 |
| 2.5 | 1.581 | 1.584 | 1.587 | 1.591 | 1.594 | 1.597 | 1.600 | 1.603 | 1.606 | 1.609 | 1.612 | 0 | 1 | 1 | 1 | 2 |
| 2.6 | 1.612 | 1.616 | 1.619 | 1.622 | 1.625 | 1.628 | 1.631 | 1.634 | 1.637 | 1.640 | 1.643 | 0 | 1 | 1 | 1 | 2 |
| 2.7 | 1.643 | 1.646 | 1.649 | 1.652 | 1.655 | 1.658 | 1.661 | 1.664 | 1.667 | 1.670 | 1.673 | 0 | 1 | 1 | 1 | 2 |
| 2.8 | 1.673 | 1.676 | 1.679 | 1.682 | 1.685 | 1.688 | 1.691 | 1.694 | 1.697 | 1.700 | 1.703 | 0 | 1 | 1 | 1 | 1 |
| 2.9 | 1.703 | 1.706 | 1.709 | 1.712 | 1.715 | 1.718 | 1.720 | 1.723 | 1.726 | 1.729 | 1.732 | 0 | 1 | 1 | 1 | 1 |
| 3.0 | 1.732 | 1.735 | 1.738 | 1.741 | 1.744 | 1.746 | 1.749 | 1.752 | 1.755 | 1.758 | 1.761 | 0 | 1 | 1 | 1 | 1 |
| 3.1 | 1.761 | 1.764 | 1.766 | 1.769 | 1.772 | 1.775 | 1.778 | 1.780 | 1.783 | 1.786 | 1.789 | 0 | 1 | 1 | 1 | 1 |
| 3.2 | 1.789 | 1.792 | 1.794 | 1.797 | 1.800 | 1.803 | 1.806 | 1.808 | 1.811 | 1.814 | 1.817 | 0 | 1 | 1 | 1 | 1 |
| 3.3 | 1.817 | 1.819 | 1.822 | 1.825 | 1.828 | 1.830 | 1.833 | 1.836 | 1.838 | 1.841 | 1.844 | 0 | 1 | 1 | 1 | 1 |
| 3.4 | 1.844 | 1.847 | 1.849 | 1.852 | 1.855 | 1.857 | 1.860 | 1.863 | 1.865 | 1.868 | 1.871 | 0 | 1 | 1 | 1 | 1 |
| 3.5 | 1.871 | 1.873 | 1.876 | 1.879 | 1.881 | 1.884 | 1.887 | 1.889 | 1.892 | 1.895 | 1.897 | 0 | 1 | 1 | 1 | 1 |
| 3.6 | 1.897 | 1.900 | 1.903 | 1.905 | 1.908 | 1.910 | 1.913 | 1.916 | 1.918 | 1.921 | 1.924 | 0 | 1 | 1 | 1 | 1 |
| 3.7 | 1.924 | 1.926 | 1.929 | 1.931 | 1.934 | 1.936 | 1.939 | 1.942 | 1.944 | 1.947 | 1.949 | 0 | 1 | 1 | 1 | 1 |
| 3.8 | 1.949 | 1.952 | 1.954 | 1.957 | 1.960 | 1.962 | 1.965 | 1.967 | 1.970 | 1.972 | 1.975 | 0 | 1 | 1 | 1 | 1 |
| 3.9 | 1.975 | 1.977 | 1.980 | 1.982 | 1.985 | 1.987 | 1.990 | 1.992 | 1.995 | 1.997 | 2.000 | 0 | 1 | 1 | 1 | 1 |
| 4.0 | 2.000 | 2.002 | 2.005 | 2.007 | 2.010 | 2.012 | 2.015 | 2.017 | 2.020 | 2.022 | 2.025 | 0 | 0 | 1 | 1 | 1 |
| 4.1 | 2.025 | 2.027 | 2.030 | 2.032 | 2.035 | 2.037 | 2.040 | 2.042 | 2.045 | 2.047 | 2.049 | 0 | 0 | 1 | 1 | 1 |
| 4.2 | 2.049 | 2.052 | 2.054 | 2.057 | 2.059 | 2.062 | 2.064 | 2.066 | 2.069 | 2.071 | 2.074 | 0 | 0 | 1 | 1 | 1 |
| 4.3 | 2.074 | 2.076 | 2.078 | 2.081 | 2.083 | 2.086 | 2.088 | 2.090 | 2.093 | 2.095 | 2.098 | 0 | 0 | 1 | 1 | 1 |
| 4.4 | 2.098 | 2.100 | 2.102 | 2.105 | 2.107 | 2.110 | 2.112 | 2.114 | 2.117 | 2.119 | 2.121 | 0 | 0 | 1 | 1 | 1 |
| 4.5 | 2.121 | 2.124 | 2.126 | 2.128 | 2.131 | 2.133 | 2.135 | 2.138 | 2.140 | 2.142 | 2.145 | 0 | 0 | 1 | 1 | 1 |
| 4.6 | 2.145 | 2.147 | 2.149 | 2.152 | 2.154 | 2.156 | 2.159 | 2.161 | 2.163 | 2.166 | 2.168 | 0 | 0 | 1 | 1 | 1 |
| 4.7 | 2.168 | 2.170 | 2.173 | 2.175 | 2.177 | 2.179 | 2.182 | 2.184 | 2.186 | 2.189 | 2.191 | 0 | 0 | 1 | 1 | 1 |
| 4.8 | 2.191 | 2.193 | 2.195 | 2.198 | 2.200 | 2.202 | 2.205 | 2.207 | 2.209 | 2.211 | 2.214 | 0 | 0 | 1 | 1 | 1 |
| 4.9 | 2.214 | 2.216 | 2.218 | 2.220 | 2.223 | 2.225 | 2.227 | 2.229 | 2.232 | 2.234 | 2.236 | 0 | 0 | 1 | 1 | 1 |
| 5. | 2.236 | 2.258 | 2.280 | 2.302 | 2.324 | 2.345 | 2.366 | 2.387 | 2.408 | 2.429 | 2.449 | 2 | 4 | 6 | 9 | 11 |
| 6. | 2.449 | 2.470 | 2.490 | 2.510 | 2.530 | 2.550 | 2.569 | 2.588 | 2.608 | 2.627 | 2.646 | 2 | 4 | 6 | 8 | 10 |
| 7. | 2.646 | 2.665 | 2.683 | 2.702 | 2.720 | 2.739 | 2.757 | 2.775 | 2.793 | 2.811 | 2.828 | 2 | 4 | 5 | 7 | 9 |
| 8. | 2.828 | 2.846 | 2.864 | 2.881 | 2.898 | 2.915 | 2.933 | 2.950 | 2.966 | 2.983 | 3.000 | 2 | 3 | 5 | 7 | 9 |
| 9. | 3.000 | 3.017 | 3.033 | 3.050 | 3.066 | 3.082 | 3.098 | 3.114 | 3.130 | 3.146 | 3.162 | 2 | 3 | 5 | 6 | 8 |

$\sqrt{\pi} = 1.772454$ (3) $\sqrt{1/\pi} = 0.56419$

# Cubes

(Moving the decimal point ONE place in $n$ is equivalent to moving it THREE places in $n3$)

| $n$ | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.0 | 1.000 | 1.030 | 1.061 | 1.093 | 1.125 | 1.158 | 1.191 | 1.225 | 1.260 | 1.295 | 1.331 | 3 | 7 | 10 | 13 | 17 |
| 1.1 | 1.331 | 1.368 | 1.405 | 1.443 | 1.482 | 1.521 | 1.561 | 1.602 | 1.643 | 1.685 | 1.728 | 4 | 8 | 12 | 16 | 20 |
| 1.2 | 1.728 | 1.772 | 1.816 | 1.861 | 1.907 | 1.953 | 2.000 | 2.048 | 2.097 | 2.147 | 2.197 | 5 | 9 | 14 | 19 | 23 |
| 1.3 | 2.197 | 2.248 | 2.300 | 2.353 | 2.406 | 2.460 | 2.515 | 2.571 | 2.628 | 2.686 | 2.744 | 5 | 11 | 16 | 22 | 27 |
| 1.4 | 2.74 | 2.80 | 2.86 | 2.92 | 2.99 | 3.05 | 3.11 | 3.18 | 3.24 | 3.31 | 3.38 | 1 | 1 | 2 | 3 | 3 |
| 1.5 | 3.38 | 3.44 | 3.51 | 3.58 | 3.65 | 3.72 | 3.80 | 3.87 | 3.94 | 4.02 | 4.10 | 1 | 1 | 2 | 3 | 4 |
| 1.6 | 4.10 | 4.17 | 4.25 | 4.33 | 4.41 | 4.49 | 4.57 | 4.66 | 4.74 | 4.83 | 4.91 | 1 | 2 | 2 | 3 | 4 |
| 1.7 | 4.91 | 5.00 | 5.09 | 5.18 | 5.27 | 5.36 | 5.45 | 5.55 | 5.64 | 5.74 | 5.83 | 1 | 2 | 3 | 4 | 5 |
| 1.8 | 5.83 | 5.93 | 6.03 | 6.13 | 6.23 | 6.33 | 6.43 | 6.54 | 6.64 | 6.75 | 6.86 | 1 | 2 | 3 | 4 | 5 |
| 1.9 | 6.86 | 6.97 | 7.08 | 7.19 | 7.30 | 7.41 | 7.53 | 7.65 | 7.76 | 7.88 | 8.00 | 1 | 2 | 3 | 5 | 6 |
| 2.0 | 8.00 | 8.12 | 8.24 | 8.37 | 8.49 | 8.62 | 8.74 | 8.87 | 9.00 | 9.13 | 9.26 | 1 | 3 | 4 | 5 | 6 |
| 2.1 | 9.26 | 9.39 | 9.53 | 9.66 | 9.80 | 9.94 | 10.08 | 10.22 | 10.36 | 10.50 | 10.65 | 1 | 3 | 4 | 6 | 7 |
| 2.2 | 10.65 | 10.79 | 10.94 | 11.09 | 11.24 | 11.39 | 11.54 | 11.70 | 11.85 | 12.01 | 12.17 | 2 | 3 | 5 | 6 | 8 |
| 2.3 | 12.17 | 12.33 | 12.49 | 12.65 | 12.81 | 12.98 | 13.14 | 13.31 | 13.48 | 13.65 | 13.82 | 2 | 3 | 5 | 7 | 8 |
| 2.4 | 13.82 | 14.00 | 14.17 | 14.35 | 14.53 | 14.71 | 14.89 | 15.07 | 15.25 | 15.44 | 15.62 | 2 | 4 | 5 | 7 | 9 |
| 2.5 | 15.62 | 15.81 | 16.00 | 16.19 | 16.39 | 16.58 | 16.78 | 16.97 | 17.17 | 17.37 | 17.58 | 2 | 4 | 6 | 8 | 10 |
| 2.6 | 17.58 | 17.78 | 17.98 | 18.19 | 18.40 | 18.61 | 18.82 | 19.03 | 19.25 | 19.47 | 19.68 | 2 | 4 | 6 | 8 | 11 |
| 2.7 | 19.68 | 19.90 | 20.12 | 20.35 | 20.57 | 20.80 | 21.02 | 21.25 | 21.48 | 21.72 | 21.95 | 2 | 5 | 7 | 9 | 11 |
| 2.8 | 21.95 | 22.19 | 22.43 | 22.67 | 22.91 | 23.15 | 23.39 | 23.64 | 23.89 | 24.14 | 24.39 | 2 | 5 | 7 | 10 | 12 |
| 2.9 | 24.39 | 24.64 | 24.90 | 25.15 | 25.41 | 25.67 | 25.93 | 26.20 | 26.46 | 26.73 | 27.00 | 3 | 5 | 8 | 10 | 13 |
| 3.0 | 27.0 | 27.3 | 27.5 | 27.8 | 28.1 | 28.4 | 28.7 | 28.9 | 29.2 | 29.5 | 29.8 | 0 | 1 | 1 | 1 | 1 |
| 3.1 | 29.8 | 30.1 | 30.4 | 30.7 | 31.0 | 31.3 | 31.6 | 31.9 | 32.2 | 32.5 | 32.8 | 0 | 1 | 1 | 1 | 1 |
| 3.2 | 32.8 | 33.1 | 33.4 | 33.7 | 34.0 | 34.3 | 34.6 | 35.0 | 35.3 | 35.6 | 35.9 | 0 | 1 | 1 | 1 | 2 |
| 3.3 | 35.9 | 36.3 | 36.6 | 36.9 | 37.3 | 37.6 | 37.9 | 38.3 | 38.6 | 39.0 | 39.3 | 0 | 1 | 1 | 1 | 2 |
| 3.4 | 39.3 | 39.7 | 40.0 | 40.4 | 40.7 | 41.1 | 41.4 | 41.8 | 42.1 | 42.5 | 42.9 | 0 | 1 | 1 | 1 | 2 |
| 3.5 | 42.9 | 43.2 | 43.6 | 44.0 | 44.4 | 44.7 | 45.1 | 45.5 | 45.9 | 46.3 | 46.7 | 0 | 1 | 1 | 2 | 2 |
| 3.6 | 46.7 | 47.0 | 47.4 | 47.8 | 48.2 | 48.6 | 49.0 | 49.4 | 49.8 | 50.2 | 50.7 | 0 | 1 | 1 | 2 | 2 |
| 3.7 | 50.7 | 51.1 | 51.5 | 51.9 | 52.3 | 52.7 | 53.2 | 53.6 | 54.0 | 54.4 | 54.9 | 0 | 1 | 1 | 2 | 2 |
| 3.8 | 54.9 | 55.3 | 55.7 | 56.2 | 56.6 | 57.1 | 57.5 | 58.0 | 58.4 | 58.9 | 59.3 | 0 | 1 | 1 | 2 | 2 |
| 3.9 | 59.3 | 59.8 | 60.2 | 60.7 | 61.2 | 61.6 | 62.1 | 62.6 | 63.0 | 63.5 | 64.0 | 0 | 1 | 1 | 2 | 2 |
| 4.0 | 64.0 | 64.5 | 65.0 | 65.5 | 65.9 | 66.4 | 66.9 | 67.4 | 67.9 | 68.4 | 68.9 | 0 | 1 | 1 | 2 | 2 |
| 4.1 | 68.9 | 69.4 | 69.9 | 70.4 | 71.0 | 71.5 | 72.0 | 72.5 | 73.0 | 73.6 | 74.1 | 1 | 1 | 2 | 2 | 3 |
| 4.2 | 74.1 | 74.6 | 75.2 | 75.7 | 76.2 | 76.8 | 77.3 | 77.9 | 78.4 | 79.0 | 79.5 | 1 | 1 | 2 | 2 | 3 |
| 4.3 | 79.5 | 80.1 | 80.6 | 81.2 | 81.7 | 82.3 | 82.9 | 83.5 | 84.0 | 84.6 | 85.2 | 1 | 1 | 2 | 2 | 3 |
| 4.4 | 85.2 | 85.8 | 86.4 | 86.9 | 87.5 | 88.1 | 88.7 | 89.3 | 89.9 | 90.5 | 91.1 | 1 | 1 | 2 | 2 | 3 |
| 4.5 | 91.1 | 91.7 | 92.3 | 93.0 | 93.6 | 94.2 | 94.8 | 95.4 | 96.1 | 96.7 | 97.3 | 1 | 1 | 2 | 2 | 3 |
| 4.6 | 97.3 | 98.0 | 98.6 | 99.3 | 99.9 | 100.5 | 101.2 | 101.8 | 102.5 | 103.2 | 103.8 | 1 | 1 | 2 | 3 | 3 |
| 4.7 | 103.8 | 104.5 | 105.2 | 105.8 | 106.5 | 107.2 | 107.9 | 108.5 | 109.2 | 109.9 | 110.6 | 1 | 1 | 2 | 3 | 3 |
| 4.8 | 110.6 | 111.3 | 112.0 | 112.7 | 113.4 | 114.1 | 114.8 | 115.5 | 116.2 | 116.9 | 117.6 | 1 | 1 | 2 | 3 | 4 |
| 4.9 | 117.6 | 118.4 | 119.1 | 119.8 | 120.6 | 121.3 | 122.0 | 122.8 | 123.5 | 124.3 | 125.0 | 1 | 1 | 2 | 3 | 4 |
| 5.0 | 125.0 | 125.8 | 126.5 | 127.3 | 128.0 | 128.8 | 129.6 | 130.3 | 131.1 | 131.9 | 132.7 | 1 | 2 | 2 | 3 | 4 |
| 5.1 | 132.7 | 133.4 | 134.2 | 135.0 | 135.8 | 136.6 | 137.4 | 138.2 | 139.0 | 139.8 | 140.6 | 1 | 2 | 2 | 3 | 4 |
| 5.2 | 140.6 | 141.4 | 142.2 | 143.1 | 143.9 | 144.7 | 145.5 | 146.4 | 147.2 | 148.0 | 148.9 | 1 | 2 | 2 | 3 | 4 |
| 5.3 | 148.9 | 149.7 | 150.6 | 151.4 | 152.3 | 153.1 | 154.0 | 154.9 | 155.7 | 156.6 | 157.5 | 1 | 2 | 3 | 3 | 4 |
| 5.4 | 157.5 | 158.3 | 159.2 | 160.1 | 161.0 | 161.9 | 162.8 | 163.7 | 164.6 | 165.5 | 166.4 | 1 | 2 | 3 | 4 | 4 |
| 5.5 | 166.4 | 167.3 | 168.2 | 169.1 | 170.0 | 171.0 | 171.9 | 172.8 | 173.7 | 174.7 | 175.6 | 1 | 2 | 3 | 4 | 5 |
| 5.6 | 175.6 | 176.6 | 177.5 | 178.5 | 179.4 | 180.4 | 181.3 | 182.3 | 183.3 | 184.2 | 185.2 | 1 | 2 | 3 | 4 | 5 |
| 5.7 | 185.2 | 186.2 | 187.1 | 188.1 | 189.1 | 190.1 | 191.1 | 192.1 | 193.1 | 194.1 | 195.1 | 1 | 2 | 3 | 4 | 5 |
| 5.8 | 195.1 | 196.1 | 197.1 | 198.2 | 199.2 | 200.2 | 201.2 | 202.3 | 203.3 | 204.3 | 205.4 | 1 | 2 | 3 | 4 | 5 |
| 5.9 | 205.4 | 206.4 | 207.5 | 208.5 | 209.6 | 210.6 | 211.7 | 212.8 | 213.8 | 214.9 | 216.0 | 1 | 2 | 3 | 4 | 5 |
| 6. | 216. | 227. | 238. | 250. | 262. | 275. | | | | | | 1 | 2 | 4 | 5 | 6 |
| | | | | | | 275. | 287. | 301. | 314. | 329. | 343. | 1 | 3 | 4 | 5 | 7 |
| 7. | 343. | 358. | 373. | 389. | 405. | 422. | 439. | 457. | 475. | 493. | 512. | 2 | 3 | 5 | 7 | 8 |
| 8. | 512. | 531. | 551. | 572. | 593. | 614. | 636. | 659. | 681. | 705. | 729. | 2 | 4 | 7 | 9 | 11 |
| 9. | 729. | 754. | 779. | 804. | 831. | 857. | 885. | 913. | 941. | 970. | 1000. | 3 | 5 | 8 | 11 | 14 |

$\pi^3 = 31.006$ (4) $1/\pi^3 = 0.032252$

# Cube Roots

(Moving the decimal point THREE places in $n$ is equivalent to moving it ONE place in $\sqrt[3]{n}$)

| $n$ | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .010 | .2154 | .2162 | .2169 | .2176 | .2183 | .2190 | .2197 | .2204 | .2210 | .2217 | .2224 | 1 | 1 | 2 | 3 | 3 |
| .011 | .2224 | .2231 | .2237 | .2244 | .2251 | .2257 | .2264 | .2270 | .2277 | .2283 | .2289 | 1 | 1 | 2 | 3 | 3 |
| .012 | .2289 | .2296 | .2302 | .2308 | .2315 | .2321 | .2327 | .2333 | .2339 | .2345 | .2351 | 1 | 1 | 2 | 2 | 3 |
| .013 | .2351 | .2357 | .2363 | .2369 | .2375 | .2381 | .2387 | .2393 | .2399 | .2404 | .2410 | 1 | 1 | 2 | 2 | 3 |
| .014 | .2410 | .2416 | .2422 | .2427 | .2433 | .2438 | .2444 | .2450 | .2455 | .2461 | .2466 | 1 | 1 | 2 | 2 | 3 |
| .015 | .2466 | .2472 | .2477 | .2483 | .2488 | .2493 | .2499 | .2504 | .2509 | .2515 | .2520 | 1 | 1 | 2 | 2 | 3 |
| .016 | .2520 | .2525 | .2530 | .2535 | .2541 | .2546 | .2551 | .2556 | .2561 | .2566 | .2571 | 1 | 1 | 2 | 2 | 3 |
| .017 | .2571 | .2576 | .2581 | .2586 | .2591 | .2596 | .2601 | .2606 | .2611 | .2616 | .2621 | 0 | 1 | 1 | 2 | 2 |
| .018 | .2621 | .2626 | .2630 | .2635 | .2640 | .2645 | .2650 | .2654 | .2659 | .2664 | .2668 | 0 | 1 | 1 | 2 | 2 |
| .019 | .2668 | .2673 | .2678 | .2682 | .2687 | .2692 | .2696 | .2701 | .2705 | .2710 | .2714 | 0 | 1 | 1 | 2 | 2 |
| .020 | .2714 | .2719 | .2723 | .2728 | .2732 | .2737 | .2741 | .2746 | .2750 | .2755 | .2759 | 0 | 1 | 1 | 2 | 2 |
| .021 | .2759 | .2763 | .2768 | .2772 | .2776 | .2781 | .2785 | .2789 | .2794 | .2798 | .2802 | 0 | 1 | 1 | 2 | 2 |
| .022 | .2802 | .2806 | .2811 | .2815 | .2819 | .2823 | .2827 | .2831 | .2836 | .2840 | .2844 | 0 | 1 | 1 | 2 | 2 |
| .023 | .2844 | .2848 | .2852 | .2856 | .2860 | .2864 | .2868 | .2872 | .2876 | .2880 | .2884 | 0 | 1 | 1 | 2 | 2 |
| .024 | .2884 | .2888 | .2892 | .2896 | .2900 | .2904 | .2908 | .2912 | .2916 | .2920 | .2924 | 0 | 1 | 1 | 2 | 2 |
| .025 | .2924 | .2928 | .2932 | .2936 | .2940 | .2943 | .2947 | .2951 | .2955 | .2959 | .2962 | 0 | 1 | 1 | 2 | 2 |
| .026 | .2962 | .2966 | .2970 | .2974 | .2978 | .2981 | .2985 | .2989 | .2993 | .2996 | .3000 | 0 | 1 | 1 | 2 | 2 |
| .027 | .3000 | .3004 | .3007 | .3011 | .3015 | .3018 | .3022 | .3026 | .3029 | .3033 | .3037 | 0 | 1 | 1 | 1 | 2 |
| .028 | .3037 | .3040 | .3044 | .3047 | .3051 | .3055 | .3058 | .3062 | .3065 | .3069 | .3072 | 0 | 1 | 1 | 1 | 2 |
| .029 | .3072 | .3076 | .3079 | .3083 | .3086 | .3090 | .3093 | .3097 | .3100 | .3104 | .3107 | 0 | 1 | 1 | 1 | 2 |
| .03 | .311 | .314 | .317 | .321 | .324 | .327 | .330 | .333 | .336 | .339 | .342 | 0 | 1 | 1 | 1 | 2 |
| .04 | .342 | .345 | .348 | .350 | .353 | .356 | .358 | .361 | .363 | .366 | .368 | 0 | 1 | 1 | 1 | 1 |
| .05 | .368 | .371 | .373 | .376 | .378 | .380 | .383 | .385 | .387 | .389 | .391 | 0 | 0 | 1 | 1 | 1 |
| .06 | .391 | .394 | .396 | .398 | .400 | .402 | .404 | .406 | .408 | .410 | .412 | 0 | 0 | 1 | 1 | 1 |
| .07 | .412 | .414 | .416 | .418 | .420 | .422 | .424 | .425 | .427 | .429 | .431 | 0 | 0 | 1 | 1 | 1 |
| .08 | .431 | .433 | .434 | .436 | .438 | .440 | .441 | .443 | .445 | .446 | .448 | 0 | 0 | 1 | 1 | 1 |
| .09 | .448 | .450 | .451 | .453 | .455 | .456 | .458 | .459 | .461 | .463 | .464 | 0 | 0 | 0 | 1 | 1 |
| .1 | .464 | .479 | .493 | .507 | .519 | .531 | | | | | | 1 | 3 | 4 | 5 | 7 |
| | | | | | | .531 | .543 | .554 | .565 | .575 | .585 | 1 | 2 | 3 | 4 | 5 |
| .2 | .585 | .594 | .604 | .613 | .621 | .630 | .638 | .646 | .654 | .662 | .669 | 1 | 2 | 3 | 3 | 4 |
| .3 | .669 | .677 | .684 | .691 | .698 | .705 | .711 | .718 | .724 | .731 | .737 | 1 | 1 | 2 | 3 | 3 |
| .4 | .737 | .743 | .749 | .755 | .761 | .766 | .772 | .777 | .783 | .788 | .794 | 1 | 1 | 2 | 2 | 3 |
| .5 | .794 | .799 | .804 | .809 | .814 | .819 | .824 | .829 | .834 | .839 | .843 | 0 | 1 | 1 | 2 | 2 |
| .6 | .843 | .848 | .853 | .857 | .862 | .866 | .871 | .875 | .879 | .884 | .888 | 0 | 1 | 1 | 2 | 2 |
| .7 | .888 | .892 | .896 | .900 | .905 | .909 | .913 | .917 | .921 | .924 | .928 | 0 | 1 | 1 | 2 | 2 |
| .8 | .928 | .932 | .936 | .940 | .944 | .947 | .951 | .955 | .958 | .962 | 0.965 | 0 | 1 | 1 | 1 | 2 |
| .9 | 0.965 | 0.969 | 0.973 | 0.976 | 0.980 | 0.983 | 0.986 | 0.990 | 0.993 | 0.997 | 1.000 | 0 | 1 | 1 | 1 | 2 |
| 1.0 | 1.000 | 1.003 | 1.007 | 1.010 | 1.013 | 1.016 | 1.020 | 1.023 | 1.026 | 1.029 | 1.032 | 0 | 1 | 1 | 1 | 2 |
| 1.1 | 1.032 | 1.035 | 1.038 | 1.042 | 1.045 | 1.048 | 1.051 | 1.054 | 1.057 | 1.060 | 1.063 | 0 | 1 | 1 | 1 | 2 |
| 1.2 | 1.063 | 1.066 | 1.069 | 1.071 | 1.074 | 1.077 | 1.080 | 1.083 | 1.086 | 1.089 | 1.091 | 0 | 1 | 1 | 1 | 1 |
| 1.3 | 1.091 | 1.094 | 1.097 | 1.100 | 1.102 | 1.105 | 1.108 | 1.111 | 1.113 | 1.116 | 1.119 | 0 | 1 | 1 | 1 | 1 |
| 1.4 | 1.119 | 1.121 | 1.124 | 1.127 | 1.129 | 1.132 | 1.134 | 1.137 | 1.140 | 1.142 | 1.145 | 0 | 1 | 1 | 1 | 1 |
| 1.5 | 1.145 | 1.147 | 1.150 | 1.152 | 1.155 | 1.157 | 1.160 | 1.162 | 1.165 | 1.167 | 1.170 | 0 | 0 | 1 | 1 | 1 |
| 1.6 | 1.170 | 1.172 | 1.174 | 1.177 | 1.179 | 1.182 | 1.184 | 1.186 | 1.189 | 1.191 | 1.193 | 0 | 0 | 1 | 1 | 1 |
| 1.7 | 1.193 | 1.196 | 1.198 | 1.200 | 1.203 | 1.205 | 1.207 | 1.210 | 1.212 | 1.214 | 1.216 | 0 | 0 | 1 | 1 | 1 |
| 1.8 | 1.216 | 1.219 | 1.221 | 1.223 | 1.225 | 1.228 | 1.230 | 1.232 | 1.234 | 1.236 | 1.239 | 0 | 0 | 1 | 1 | 1 |
| 1.9 | 1.239 | 1.241 | 1.243 | 1.245 | 1.247 | 1.249 | 1.251 | 1.254 | 1.256 | 1.258 | 1.260 | 0 | 0 | 1 | 1 | 1 |
| 2. | 1.260 | 1.281 | 1.301 | 1.320 | 1.339 | 1.357 | | | | | | 2 | 4 | 6 | 8 | 10 |
| | | | | | | 1.357 | 1.375 | 1.392 | 1.409 | 1.426 | 1.442 | 2 | 3 | 5 | 7 | 9 |
| 3. | 1.442 | 1.458 | 1.474 | 1.489 | 1.504 | 1.518 | 1.533 | 1.547 | 1.560 | 1.574 | 1.587 | 1 | 3 | 4 | 6 | 7 |
| 4. | 1.587 | 1.601 | 1.613 | 1.626 | 1.639 | 1.651 | 1.663 | 1.675 | 1.687 | 1.698 | 1.710 | 1 | 2 | 4 | 5 | 6 |
| 5. | 1.710 | 1.721 | 1.732 | 1.744 | 1.754 | 1.765 | 1.776 | 1.786 | 1.797 | 1.807 | 1.817 | 1 | 2 | 3 | 4 | 5 |
| 6. | 1.817 | 1.827 | 1.837 | 1.847 | 1.857 | 1.866 | 1.876 | 1.885 | 1.895 | 1.904 | 1.913 | 1 | 2 | 3 | 4 | 5 |
| 7. | 1.913 | 1.922 | 1.931 | 1.940 | 1.949 | 1.957 | 1.966 | 1.975 | 1.983 | 1.992 | 2.000 | 1 | 2 | 3 | 3 | 4 |
| 8. | 2.000 | 2.008 | 2.017 | 2.025 | 2.033 | 2.041 | 2.049 | 2.057 | 2.065 | 2.072 | 2.080 | 1 | 2 | 2 | 3 | 4 |
| 9. | 2.080 | 2.088 | 2.095 | 2.103 | 2.110 | 2.118 | 2.125 | 2.133 | 2.140 | 2.147 | 2.154 | 1 | 1 | 2 | 3 | 4 |

$\sqrt[3]{\pi} = 1.46459$ (5) $\sqrt[3]{1/\pi} = 0.68278$ $\sqrt[3]{6/\pi} = 1.24070$ ,

## $\pi n$ Circumferences of Circles ($n = diam.$)

| $n$ | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 3.14 | 3.46 | 3.77 | 4.08 | 4.40 | 4.71 | 5.03 | 5.34 | 5.65 | 5.97 | 6.28 | 3 | 6 | 9 | 13 | 16 |
| 2. | 6.28 | 6.60 | 6.91 | 7.23 | 7.54 | 7.85 | 8.17 | 8.48 | 8.80 | 9.11 | 9.42 | 3 | 6 | 9 | 13 | 16 |
| 3. | 9.42 | 9.74 | 10.05 | 10.37 | 10.68 | 11.00 | 11.31 | 11.62 | 11.94 | 12.25 | 12.57 | 3 | 6 | 9 | 13 | 16 |
| 4. | 12.57 | 12.88 | 13.19 | 13.51 | 13.82 | 14.14 | 14.45 | 14.77 | 15.08 | 15.39 | 15.71 | 3 | 6 | 9 | 13 | 16 |
| 5. | 15.71 | 16.02 | 16.34 | 16.65 | 16.96 | 17.28 | 17.59 | 17.91 | 18.22 | 18.54 | 18.85 | 3 | 6 | 9 | 13 | 16 |
| 6. | 18.85 | 19.16 | 19.48 | 19.79 | 20.11 | 20.42 | 20.73 | 21.05 | 21.36 | 21.68 | 21.99 | 3 | 6 | 9 | 13 | 16 |
| 7. | 21.99 | 22.31 | 22.62 | 22.93 | 23.25 | 23.56 | 23.88 | 24.19 | 24.50 | 24.82 | 25.13 | 3 | 6 | 9 | 13 | 16 |
| 8. | 25.13 | 25.45 | 25.76 | 26.08 | 26.39 | 26.70 | 27.02 | 27.33 | 27.65 | 27.96 | 28.27 | 3 | 6 | 9 | 13 | 16 |
| 9. | 28.27 | 28.59 | 28.90 | 29.22 | 29.53 | 29.85 | 30.16 | 30.47 | 30.79 | 31.10 | 31.42 | 3 | 6 | 9 | 13 | 16 |

## $\frac{1}{4}\pi n^2$ Areas of Circles ($n = diam.$)

(Moving the decimal point ONE place in $n$ is equivalent to moving it TWO places in $\pi n^2/4$.)

| $n$ | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.0 | 0.785 | 0.801 | 0.817 | 0.833 | 0.849 | 0.866 | 0.882 | 0.899 | 0.916 | 0.933 | 0.950 | 2 | 3 | 5 | 7 | 9 |
| 1.1 | 0.950 | 0.968 | 0.985 | 1.003 | 1.021 | 1.039 | 1.057 | 1.075 | 1.094 | 1.112 | 1.131 | 2 | 4 | 5 | 7 | 9 |
| 1.2 | 1.131 | 1.150 | 1.169 | 1.188 | 1.208 | 1.227 | 1.247 | 1.267 | 1.287 | 1.307 | 1.327 | 2 | 4 | 6 | 8 | 10 |
| 1.3 | 1.327 | 1.348 | 1.368 | 1.389 | 1.410 | 1.431 | 1.453 | 1.474 | 1.496 | 1.517 | 1.539 | 2 | 4 | 6 | 8 | 11 |
| 1.4 | 1.539 | 1.561 | 1.584 | 1.606 | 1.629 | 1.651 | 1.674 | 1.697 | 1.720 | 1.744 | 1.767 | 2 | 5 | 7 | 9 | 11 |
| 1.5 | 1.767 | 1.791 | 1.815 | 1.839 | 1.863 | 1.887 | 1.911 | 1.936 | 1.961 | 1.986 | 2.011 | 2 | 5 | 7 | 10 | 12 |
| 1.6 | 2.011 | 2.036 | 2.061 | 2.087 | 2.112 | 2.138 | 2.164 | 2.190 | 2.217 | 2.243 | 2.270 | 3 | 5 | 8 | 10 | 13 |
| 1.7 | 2.270 | 2.297 | 2.324 | 2.351 | 2.378 | 2.405 | 2.433 | 2.461 | 2.488 | 2.516 | 2.545 | 3 | 5 | 8 | 11 | 14 |
| 1.8 | 2.545 | 2.573 | 2.602 | 2.630 | 2.659 | 2.688 | 2.717 | 2.746 | 2.776 | 2.806 | 2.835 | 3 | 6 | 9 | 12 | 15 |
| 1.9 | 2.835 | 2.865 | 2.895 | 2.926 | 2.956 | 2.986 | 3.017 | 3.048 | 3.079 | 3.110 | 3.142 | 3 | 6 | 9 | 12 | 15 |
| 2.0 | 3.14 | 3.17 | 3.20 | 3.24 | 3.27 | 3.30 | 3.33 | 3.37 | 3.40 | 3.43 | 3.46 | 0 | 1 | 1 | 1 | 2 |
| 2.1 | 3.46 | 3.50 | 3.53 | 3.56 | 3.60 | 3.63 | 3.66 | 3.70 | 3.73 | 3.77 | 3.80 | 0 | 1 | 1 | 1 | 2 |
| 2.2 | 3.80 | 3.84 | 3.87 | 3.91 | 3.94 | 3.98 | 4.01 | 4.05 | 4.08 | 4.12 | 4.15 | 0 | 1 | 1 | 1 | 2 |
| 2.3 | 4.15 | 4.19 | 4.23 | 4.26 | 4.30 | 4.34 | 4.37 | 4.41 | 4.45 | 4.49 | 4.52 | 0 | 1 | 1 | 1 | 2 |
| 2.4 | 4.52 | 4.56 | 4.60 | 4.64 | 4.68 | 4.71 | 4.75 | 4.79 | 4.83 | 4.87 | 4.91 | 0 | 1 | 1 | 2 | 2 |
| 2.5 | 4.91 | 4.95 | 4.99 | 5.03 | 5.07 | 5.11 | 5.15 | 5.19 | 5.23 | 5.27 | 5.31 | 0 | 1 | 1 | 2 | 2 |
| 2.6 | 5.31 | 5.35 | 5.39 | 5.43 | 5.47 | 5.52 | 5.56 | 5.60 | 5.64 | 5.68 | 5.73 | 0 | 1 | 1 | 2 | 2 |
| 2.7 | 5.73 | 5.77 | 5.81 | 5.85 | 5.90 | 5.94 | 5.98 | 6.03 | 6.07 | 6.11 | 6.16 | 0 | 1 | 1 | 2 | 2 |
| 2.8 | 6.16 | 6.20 | 6.25 | 6.29 | 6.33 | 6.38 | 6.42 | 6.47 | 6.51 | 6.56 | 6.61 | 0 | 1 | 1 | 2 | 2 |
| 2.9 | 6.61 | 6.65 | 6.70 | 6.74 | 6.79 | 6.83 | 6.88 | 6.93 | 6.97 | 7.02 | 7.07 | 0 | 1 | 1 | 2 | 2 |
| 3.0 | 7.07 | 7.12 | 7.16 | 7.21 | 7.26 | 7.31 | 7.35 | 7.40 | 7.45 | 7.50 | 7.55 | 0 | 1 | 1 | 2 | 2 |
| 3.1 | 7.55 | 7.60 | 7.65 | 7.69 | 7.74 | 7.79 | 7.84 | 7.89 | 7.94 | 7.99 | 8.04 | 0 | 1 | 1 | 2 | 2 |
| 3.2 | 8.04 | 8.09 | 8.14 | 8.19 | 8.24 | 8.30 | 8.35 | 8.40 | 8.45 | 8.50 | 8.55 | 1 | 1 | 2 | 2 | 3 |
| 3.3 | 8.55 | 8.60 | 8.66 | 8.71 | 8.76 | 8.81 | 8.87 | 8.92 | 8.97 | 9.08 | 9.08 | 1 | 1 | 2 | 2 | 3 |
| 3.4 | 9.08 | 9.13 | 9.19 | 9.24 | 9.29 | 9.35 | 9.40 | 9.46 | 9.51 | 9.57 | 9.62 | 1 | 1 | 2 | 2 | 3 |
| 3.5 | 9.62 | 9.68 | 9.73 | 9.79 | 9.84 | 9.90 | 9.95 | 10.01 | 10.07 | 10.12 | 10.18 | 1 | 1 | 2 | 2 | 3 |
| 3.6 | 10.18 | 10.24 | 10.29 | 10.35 | 10.41 | 10.46 | 10.52 | 10.58 | 10.64 | 10.69 | 10.75 | 1 | 1 | 2 | 2 | 3 |
| 3.7 | 10.75 | 10.81 | 10.87 | 10.93 | 10.99 | 11.04 | 11.10 | 11.16 | 11.22 | 11.28 | 11.34 | 1 | 1 | 2 | 2 | 3 |
| 3.8 | 11.34 | 11.40 | 11.46 | 11.52 | 11.58 | 11.64 | 11.70 | 11.76 | 11.82 | 11.88 | 11.95 | 1 | 1 | 2 | 2 | 3 |
| 3.9 | 11.95 | 12.01 | 12.07 | 12.13 | 12.19 | 12.25 | 12.32 | 12.38 | 12.44 | 12.50 | 12.57 | 1 | 1 | 2 | 2 | 3 |
| 4.0 | 12.57 | 12.63 | 12.69 | 12.76 | 12.82 | 12.88 | 12.95 | 13.01 | 13.07 | 13.14 | 13.20 | 1 | 1 | 2 | 3 | 3 |
| 4.1 | 13.20 | 13.27 | 13.33 | 13.40 | 13.46 | 13.53 | 13.59 | 13.66 | 13.72 | 13.79 | 13.85 | 1 | 1 | 2 | 3 | 3 |
| 4.2 | 13.85 | 13.92 | 13.99 | 14.05 | 14.12 | 14.19 | 14.25 | 14.32 | 14.39 | 14.45 | 14.52 | 1 | 1 | 2 | 3 | 3 |
| 4.3 | 14.52 | 14.59 | 14.66 | 14.73 | 14.79 | 14.86 | 14.93 | 15.00 | 15.07 | 15.14 | 15.21 | 1 | 1 | 2 | 3 | 3 |
| 4.4 | 15.21 | 15.27 | 15.34 | 15.41 | 15.48 | 15.55 | 15.62 | 15.69 | 15.76 | 15.83 | 15.90 | 1 | 1 | 2 | 3 | 3 |
| 4.5 | 15.90 | 15.98 | 16.05 | 16.12 | 16.19 | 16.26 | 16.33 | 16.40 | 16.47 | 16.55 | 16.62 | 1 | 1 | 2 | 3 | 4 |
| 4.6 | 16.62 | 16.69 | 16.76 | 16.84 | 16.91 | 16.98 | 17.06 | 17.13 | 17.20 | 17.28 | 17.35 | 1 | 1 | 2 | 3 | 4 |
| 4.7 | 17.35 | 17.42 | 17.50 | 17.57 | 17.65 | 17.72 | 17.80 | 17.87 | 17.95 | 18.02 | 18.10 | 1 | 1 | 2 | 3 | 4 |
| 4.8 | 18.10 | 18.17 | 18.25 | 18.32 | 18.40 | 18.47 | 18.55 | 18.63 | 18.70 | 18.78 | 18.86 | 1 | 2 | 2 | 3 | 4 |
| 4.9 | 18.86 | 18.93 | 19.01 | 19.09 | 19.17 | 19.24 | 19.32 | 19.40 | 19.48 | 19.56 | 19.63 | 1 | 2 | 2 | 3 | 4 |
| 5. | 19.6 | 20.4 | 21.2 | 22.1 | 22.9 | 23.8 | 24.6 | 25.5 | 26.4 | 27.3 | 28.3 | 1 | 2 | 3 | 3 | 4 |
| 6. | 28.3 | 29.2 | 30.2 | 31.2 | 32.2 | 33.2 | 34.2 | 35.3 | 36.3 | 37.4 | 38.5 | 1 | 2 | 3 | 4 | 5 |
| 7. | 38.5 | 39.6 | 40.7 | 41.9 | 43.0 | 44.2 | 45.4 | 46.6 | 47.8 | 49.0 | 50.3 | 1 | 2 | 4 | 5 | 6 |
| 8. | 50.3 | 51.5 | 52.8 | 54.1 | 55.4 | 56.7 | 58.1 | 59.4 | 60.8 | 62.2 | 63.6 | 1 | 3 | 4 | 5 | 7 |
| 9. | 63.6 | 65.0 | 66.5 | 67.9 | 69.4 | 70.9 | 72.4 | 73.9 | 75.4 | 77.0 | 78.5 | 1 | 3 | 4 | 6 | 7 |

(Moving the decimal point to the RIGHT in $n$ is equivalent to moving it to the LEFT in $1/n$)

# Reciprocals

| 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | $n$ | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1000 | .1010 | .1020 | .1031 | .1042 | .1053 | .1064 | .1075 | .1087 | .1099 | .1111 | 9. | 1 | 2 | 3 | 4 | 6 |
| .1111 | .1124 | .1136 | .1149 | .1163 | .1176 | .1190 | .1205 | .1220 | .1235 | .1250 | 8. | 1 | 3 | 4 | 6 | 7 |
| .1250 | .1266 | .1282 | .1299 | .1316 | .1333 | .1351 | .1370 | .1389 | .1408 | .1429 | 7. | 2 | 4 | 5 | 7 | 9 |
| .1429 | .1449 | .1471 | .1493 | .1515 | .1538 | | | | | | | 2 | 4 | 7 | 9 | 11 |
| | | | | | .1538 | .1562 | .1587 | .1613 | .1639 | .1667 | 6. | 3 | 5 | 8 | 10 | 13 |
| .1667 | .1669 | .1672 | .1675 | .1678 | .1681 | .1684 | .1686 | .1689 | .1692 | .1695 | 5.9 | 0 | 1 | 1 | 1 | 1 |
| .1695 | .1698 | .1701 | .1704 | .1706 | .1709 | .1712 | .1715 | .1718 | .1721 | .1724 | 5.8 | 0 | 1 | 1 | 1 | 1 |
| .1724 | .1727 | .1730 | .1733 | .1736 | .1739 | .1742 | .1745 | .1748 | .1751 | .1754 | 5.7 | 0 | 1 | 1 | 1 | 2 |
| .1754 | .1757 | .1761 | .1764 | .1767 | .1770 | .1773 | .1776 | .1779 | .1783 | .1786 | 5.6 | 0 | 1 | 1 | 1 | 2 |
| .1786 | .1789 | .1792 | .1795 | .1799 | .1802 | .1805 | .1808 | .1812 | .1815 | .1818 | 5.5 | 0 | 1 | 1 | 1 | 2 |
| .1818 | .1821 | .1825 | .1828 | .1832 | .1835 | .1838 | .1842 | .1845 | .1848 | .1852 | 5.4 | 0 | 1 | 1 | 1 | 2 |
| .1852 | .1855 | .1859 | .1862 | .1866 | .1869 | .1873 | .1876 | .1880 | .1883 | .1887 | 5.3 | 0 | 1 | 1 | 1 | 2 |
| .1887 | .1890 | .1894 | .1898 | .1901 | .1905 | .1908 | .1912 | .1916 | .1919 | .1923 | 5.2 | 0 | 1 | 1 | 1 | 2 |
| .1923 | .1927 | .1931 | .1934 | .1938 | .1942 | .1946 | .1949 | .1953 | .1957 | .1961 | 5.1 | 0 | 1 | 1 | 2 | 2 |
| .1961 | .1965 | .1969 | .1972 | .1976 | .1980 | .1984 | .1988 | .1992 | .1996 | .2000 | 5.0 | 0 | 1 | 1 | 2 | 2 |
| .2000 | .2004 | .2008 | .2012 | .2016 | .2020 | .2024 | .2028 | .2033 | .2037 | .2041 | 4.9 | 0 | 1 | 1 | 2 | 2 |
| .2041 | .2045 | .2049 | .2053 | .2058 | .2062 | .2066 | .2070 | .2075 | .2079 | .2083 | 4.8 | 0 | 1 | 1 | 2 | 2 |
| .2083 | .2088 | .2092 | .2096 | .2101 | .2105 | .2110 | .2114 | .2119 | .2123 | .2128 | 4.7 | 0 | 1 | 1 | 2 | 2 |
| .2128 | .2132 | .2137 | .2141 | .2146 | .2151 | .2155 | .2160 | .2165 | .2169 | .2174 | 4.6 | 0 | 1 | 1 | 2 | 2 |
| .2174 | .2179 | .2183 | .2188 | .2193 | .2198 | .2203 | .2208 | .2212 | .2217 | .2222 | 4.5 | 0 | 1 | 1 | 2 | 2 |
| .2222 | .2227 | .2232 | .2237 | .2242 | .2247 | .2252 | .2257 | .2262 | .2268 | .2273 | 4.4 | 1 | 1 | 2 | 2 | 3 |
| .2273 | .2278 | .2283 | .2288 | .2294 | .2299 | .2304 | .2309 | .2315 | .2320 | .2326 | 4.3 | 1 | 1 | 2 | 2 | 3 |
| .2326 | .2331 | .2336 | .2342 | .2347 | .2353 | .2358 | .2364 | .2370 | .2375 | .2381 | 4.2 | 1 | 1 | 2 | 2 | 3 |
| .2381 | .2387 | .2392 | .2398 | .2404 | .2410 | .2415 | .2421 | .2427 | .2433 | .2439 | 4.1 | 1 | 1 | 2 | 2 | 3 |
| .2439 | .2445 | .2451 | .2457 | .2463 | .2469 | .2475 | .2481 | .2488 | .2494 | .2500 | 4.0 | 1 | 1 | 2 | 2 | 3 |
| .2500 | .2506 | .2513 | .2519 | .2525 | .2532 | .2538 | .2545 | .2551 | .2558 | .2564 | 3.9 | 1 | 1 | 2 | 3 | 3 |
| .2564 | .2571 | .2577 | .2584 | .2591 | .2597 | .2604 | .2611 | .2618 | .2625 | .2632 | 3.8 | 1 | 1 | 2 | 3 | 3 |
| .2632 | .2639 | .2646 | .2653 | .2660 | .2667 | .2674 | .2681 | .2688 | .2695 | .2703 | 3.7 | 1 | 1 | 2 | 3 | 4 |
| .2703 | .2710 | .2717 | .2725 | .2732 | .2740 | .2747 | .2755 | .2762 | .2770 | .2778 | 3.6 | 1 | 2 | 2 | 3 | 4 |
| .2778 | .2786 | .2793 | .2801 | .2809 | .2817 | .2825 | .2833 | .2841 | .2849 | .2857 | 3.5 | 1 | 2 | 2 | 3 | 4 |
| .2857 | .2865 | .2874 | .2882 | .2890 | .2899 | .2907 | .2915 | .2924 | .2933 | .2941 | 3.4 | 1 | 2 | 3 | 3 | 4 |
| .2941 | .2950 | .2959 | .2967 | .2976 | .2985 | .2994 | .3003 | .3012 | .3021 | .3030 | 3.3 | 1 | 2 | 3 | 4 | 4 |
| .3030 | .3040 | .3049 | .3058 | .3067 | .3077 | .3086 | .3096 | .3106 | .3115 | .3125 | 3.2 | 1 | 2 | 3 | 4 | 5 |
| .3125 | .3135 | .3145 | .3155 | .3165 | .3175 | .3185 | .3195 | .3205 | .3215 | .3226 | 3.1 | 1 | 2 | 3 | 4 | 5 |
| .3226 | .3236 | .3247 | .3257 | .3268 | .3279 | .3289 | .3300 | .3311 | .3322 | .3333 | 3.0 | 1 | 2 | 3 | 4 | 5 |
| .333 | .334 | .336 | .337 | .338 | .339 | .340 | .341 | .342 | .344 | .345 | 2.9 | 0 | 0 | 0 | 0 | 1 |
| .345 | .346 | .347 | .348 | .350 | .351 | .352 | .353 | .355 | .356 | .357 | 2.8 | 0 | 0 | 0 | 0 | 1 |
| .357 | .358 | .360 | .361 | .362 | .364 | .365 | .366 | .368 | .369 | .370 | 2.7 | 0 | 0 | 0 | 1 | 1 |
| .370 | .372 | .373 | .375 | .376 | .377 | .379 | .380 | .382 | .383 | .385 | 2.6 | 0 | 0 | 0 | 1 | 1 |
| .385 | .386 | .388 | .389 | .391 | .392 | .394 | .395 | .397 | .398 | .400 | 2.5 | 0 | 0 | 0 | 1 | 1 |
| .400 | .402 | .403 | .405 | .407 | .408 | .410 | .412 | .413 | .415 | .417 | 2.4 | 0 | 0 | 0 | 1 | 1 |
| .417 | .418 | .420 | .422 | .424 | .426 | .427 | .429 | .431 | .433 | .435 | 2.3 | 0 | 0 | 1 | 1 | 1 |
| .435 | .437 | .439 | .441 | .442 | .444 | .446 | .448 | .450 | .452 | .455 | 2.2 | 0 | 0 | 1 | 1 | 1 |
| .455 | .457 | .459 | .461 | .463 | .465 | .467 | .469 | .472 | .474 | .476 | 2.1 | 0 | 0 | 1 | 1 | 1 |
| .476 | .478 | .481 | .483 | .485 | .488 | .490 | .493 | .495 | .498 | .500 | 2.0 | 0 | 0 | 1 | 1 | 1 |
| .500 | .503 | .505 | .508 | .510 | .513 | .515 | .518 | .521 | .524 | .526 | 1.9 | 0 | 1 | 1 | 1 | 1 |
| .526 | .529 | .532 | .535 | .538 | .541 | .543 | .546 | .549 | .552 | .556 | 1.8 | 0 | 1 | 1 | 1 | 1 |
| .556 | .559 | .562 | .565 | .568 | .571 | .575 | .578 | .581 | .585 | .588 | 1.7 | 0 | 1 | 1 | 1 | 2 |
| .588 | .592 | .595 | .599 | .602 | .606 | .610 | .613 | .617 | .621 | .625 | 1.6 | 0 | 1 | 1 | 1 | 2 |
| .625 | .629 | .633 | .637 | .641 | .645 | .649 | .654 | .658 | .662 | .667 | 1.5 | 0 | 1 | 1 | 2 | 2 |
| .667 | .671 | .676 | .680 | .685 | .690 | .694 | .699 | .704 | .709 | .714 | 1.4 | 0 | 1 | 1 | 2 | 2 |
| .714 | .719 | .725 | .730 | .735 | .741 | .746 | .752 | .758 | .763 | .769 | 1.3 | 1 | 1 | 2 | 2 | 3 |
| .769 | .775 | .781 | .787 | .794 | .800 | .806 | .813 | .820 | .826 | .833 | 1.2 | 1 | 1 | 2 | 3 | 3 |
| .833 | .840 | .847 | .855 | .862 | .870 | .877 | .885 | .893 | .901 | .909 | 1.1 | 1 | 2 | 2 | 3 | 4 |
| .909 | .917 | .926 | .935 | .943 | .952 | .962 | .971 | .980 | .990 | | 1.0 | 1 | 2 | 3 | 4 | 5 |

$1/\pi = 0.31831$ $\quad$ $1/\pi^2 = 0.10132$

| Sine | | .9 | .8 | .7 | .6 | .5 | .4 | .3 | .2 | .1 | .0 | Cosine | Tenths of the Tabular Difference |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | .0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | | | 1 2 3 4 5 |
| | | | | | | | | | | | 0.000000 | 90° | |
| 0° | 0.000000 | 001745 | 003491 | 005236 | 006981 | 008727 | 010472 | 012217 | 013962 | 015707 | 017452 | 89 | 175 349 524 698 873 |
| 1 | 01745 | 01920 | 02094 | 02269 | 02443 | 02618 | 02792 | 02967 | 03141 | 03316 | 03490 | 88 | 17 35 52 70 87 |
| 2 | 03490 | 03664 | 03839 | 04013 | 04188 | 04362 | 04536 | 04711 | 04885 | 05059 | 05234 | 87 | 17 35 52 70 87 |
| 3 | 05234 | 05408 | 05582 | 05756 | 05931 | 06105 | 06279 | 06453 | 06627 | 06802 | 06976 | 86 | 17 35 52 70 87 |
| 4 | 06976 | 07150 | 07324 | 07498 | 07672 | 07846 | 08020 | 08194 | 08368 | 08542 | 08716 | 85 | 17 35 52 70 87 |
| 5 | 08716 | 08889 | 09063 | 09237 | 09411 | 09585 | 09758 | 09932 | 10106 | 10279 | 10453 | 84 | 17 35 52 69 87 |
| 6 | 10453 | 10626 | 10800 | 10973 | 11147 | 11320 | 11494 | 11667 | 11840 | 12014 | 12187 | 83 | 17 35 52 69 87 |
| 7 | 12187 | 12360 | 12533 | 12706 | 12880 | 13053 | 13226 | 13399 | 13572 | 13744 | 13917 | 82 | 17 35 52 69 87 |
| 8 | 13917 | 14090 | 14263 | 14436 | 14608 | 14781 | 14954 | 15126 | 15299 | 15471 | 15643 | 81 | 17 35 52 69 86 |
| 9 | 15643 | 15816 | 15988 | 16160 | 16333 | 16505 | 16677 | 16849 | 17021 | 17193 | 0.17365 | 80° | 17 34 52 69 86 |
| 10° | 0.1736 | 1754 | 1771 | 1788 | 1805 | 1822 | 1840 | 1857 | 1874 | 1891 | 1908 | 79 | 2 3 5 7 9 |
| 11 | 1908 | 1925 | 1942 | 1959 | 1977 | 1994 | 2011 | 2028 | 2045 | 2062 | 2079 | 78 | 2 3 5 7 9 |
| 12 | 2079 | 2096 | 2113 | 2130 | 2147 | 2164 | 2181 | 2198 | 2215 | 2233 | 2250 | 77 | 2 3 5 7 9 |
| 13 | 2250 | 2267 | 2284 | 2300 | 2317 | 2334 | 2351 | 2368 | 2385 | 2402 | 2419 | 76 | 2 3 5 7 8 |
| 14 | 2419 | 2436 | 2453 | 2470 | 2487 | 2504 | 2521 | 2538 | 2554 | 2571 | 2588 | 75 | 2 3 5 7 8 |
| 15 | 2588 | 2605 | 2622 | 2639 | 2656 | 2672 | 2689 | 2706 | 2723 | 2740 | 2756 | 74 | 2 3 5 7 8 |
| 16 | 2756 | 2773 | 2790 | 2807 | 2823 | 2840 | 2857 | 2874 | 2890 | 2907 | 2924 | 73 | 2 3 5 7 8 |
| 17 | 2924 | 2940 | 2957 | 2974 | 2990 | 3007 | 3024 | 3040 | 3057 | 3074 | 3090 | 72 | 2 3 5 7 8 |
| 18 | 3090 | 3107 | 3123 | 3140 | 3156 | 3173 | 3190 | 3206 | 3223 | 3239 | 3256 | 71 | 2 3 5 7 8 |
| 19 | 3256 | 3272 | 3289 | 3305 | 3322 | 3338 | 3355 | 3371 | 3387 | 3404 | 0.3420 | 70° | 2 3 5 7 8 |
| 20° | 0.3420 | 3437 | 3453 | 3469 | 3486 | 3502 | 3518 | 3535 | 3551 | 3567 | 3584 | 69 | 2 3 5 7 8 |
| 21 | 3584 | 3600 | 3616 | 3633 | 3649 | 3665 | 3681 | 3697 | 3714 | 3730 | 3746 | 68 | 2 3 5 6 8 |
| 22 | 3746 | 3762 | 3778 | 3795 | 3811 | 3827 | 3843 | 3859 | 3875 | 3891 | 3907 | 67 | 2 3 5 6 8 |
| 23 | 3907 | 3923 | 3939 | 3955 | 3971 | 3987 | 4003 | 4019 | 4035 | 4051 | 4067 | 66 | 2 3 5 6 8 |
| 24 | 4067 | 4083 | 4099 | 4115 | 4131 | 4147 | 4163 | 4179 | 4195 | 4210 | 4226 | 65 | 2 3 5 6 8 |
| 25 | 4226 | 4242 | 4258 | 4274 | 4289 | 4305 | 4321 | 4337 | 4352 | 4368 | 4384 | 64 | 2 3 5 6 8 |
| 26 | 4384 | 4399 | 4415 | 4431 | 4446 | 4462 | 4478 | 4493 | 4509 | 4524 | 4540 | 63 | 2 3 5 6 8 |
| 27 | 4540 | 4555 | 4571 | 4586 | 4602 | 4617 | 4633 | 4648 | 4664 | 4679 | 4695 | 62 | 2 3 5 6 8 |
| 28 | 4695 | 4710 | 4726 | 4741 | 4756 | 4772 | 4787 | 4802 | 4818 | 4833 | 4848 | 61 | 2 3 5 6 8 |
| 29 | 4848 | 4863 | 4879 | 4894 | 4909 | 4924 | 4939 | 4955 | 4970 | 4985 | 0.5000 | 60° | 2 3 5 6 8 |
| 30° | 0.5000 | 5015 | 5030 | 5045 | 5060 | 5075 | 5090 | 5105 | 5120 | 5135 | 5150 | 59 | 2 3 5 6 8 |
| 31 | 5150 | 5165 | 5180 | 5195 | 5210 | 5225 | 5240 | 5255 | 5270 | 5284 | 5299 | 58 | 1 3 4 6 7 |
| 32 | 5299 | 5314 | 5329 | 5344 | 5358 | 5373 | 5388 | 5402 | 5417 | 5432 | 5446 | 57 | 1 3 4 6 7 |
| 33 | 5446 | 5461 | 5476 | 5490 | 5505 | 5519 | 5534 | 5548 | 5563 | 5577 | 5592 | 56 | 1 3 4 6 7 |
| 34 | 5592 | 5606 | 5621 | 5635 | 5650 | 5664 | 5678 | 5693 | 5707 | 5721 | 5736 | 55 | 1 3 4 6 7 |
| 35 | 5736 | 5750 | 5764 | 5779 | 5793 | 5807 | 5821 | 5835 | 5850 | 5864 | 5878 | 54 | 1 3 4 6 7 |
| 36 | 5878 | 5892 | 5906 | 5920 | 5934 | 5948 | 5962 | 5976 | 5990 | 6004 | 6018 | 53 | 1 3 4 6 7 |
| 37 | 6018 | 6032 | 6046 | 6060 | 6074 | 6088 | 6101 | 6115 | 6129 | 6143 | 6157 | 52 | 1 3 4 6 7 |
| 38 | 6157 | 6170 | 6184 | 6198 | 6211 | 6225 | 6239 | 6252 | 6266 | 6280 | 6293 | 51 | 1 3 4 5 7 |
| 39 | 6293 | 6307 | 6320 | 6334 | 6347 | 6361 | 6374 | 6388 | 6401 | 6414 | 0.6428 | 50° | 1 3 4 5 7 |
| 40° | 0.6428 | 6441 | 6455 | 6468 | 6481 | 6494 | 6508 | 6521 | 6534 | 6547 | 6561 | 49 | 1 3 4 5 7 |
| 41 | 6561 | 6574 | 6587 | 6600 | 6613 | 6626 | 6639 | 6652 | 6665 | 6678 | 6691 | 48 | 1 3 4 5 7 |
| 42 | 6691 | 6704 | 6717 | 6730 | 6743 | 6756 | 6769 | 6782 | 6794 | 6807 | 6820 | 47 | 1 3 4 5 6 |
| 43 | 6820 | 6833 | 6845 | 6858 | 6871 | 6884 | 6896 | 6909 | 6921 | 6934 | 6947 | 46 | 1 3 4 5 6 |
| 44 | 6947 | 6959 | 6972 | 6984 | 6997 | 7009 | 7022 | 7034 | 7046 | 7059 | 0.7071 | 45° | 1 2 4 5 6 |
| 45° | 0.7071 | | | | | | | | | | | | |

| Sine | .0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | Cosine | | Tenths of the Tabular Difference 1 2 3 4 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.7071 | 45° | |
| 45° | 0.7071 | 7083 | 7096 | 7108 | 7120 | 7133 | 7145 | 7157 | 7169 | 7181 | 7193 | 44 | 1 2 4 5 6 |
| 46 | 7193 | 7206 | 7218 | 7230 | 7242 | 7254 | 7266 | 7278 | 7290 | 7302 | 7314 | 43 | 1 2 4 5 6 |
| 47 | 7314 | 7325 | 7337 | 7349 | 7361 | 7373 | 7385 | 7396 | 7408 | 7420 | 7431 | 42 | 1 2 4 5 6 |
| 48 | 7431 | 7443 | 7455 | 7466 | 7478 | 7490 | 7501 | 7513 | 7524 | 7536 | 7547 | 41 | 1 2 3 5 6 |
| 49 | 7547 | 7559 | 7570 | 7581 | 7593 | 7604 | 7615 | 7627 | 7638 | 7649 | 7660 | 40° | 1 2 3 5 6 |
| 50° | 0.7660 | 7672 | 7683 | 7694 | 7705 | 7716 | 7727 | 7738 | 7749 | 7760 | 0.7771 | 39 | 1 2 3 4 6 |
| 51 | 7771 | 7782 | 7793 | 7804 | 7815 | 7826 | 7837 | 7848 | 7859 | 7869 | 7880 | 38 | 1 2 3 4 5 |
| 52 | 7880 | 7891 | 7902 | 7912 | 7923 | 7934 | 7944 | 7955 | 7965 | 7976 | 7986 | 37 | 1 2 3 4 5 |
| 53 | 7986 | 7997 | 8007 | 8018 | 8028 | 8039 | 8049 | 8059 | 8070 | 8080 | 8090 | 36 | 1 2 3 4 5 |
| 54 | 8090 | 8100 | 8111 | 8121 | 8131 | 8141 | 8151 | 8161 | 8171 | 8181 | 8192 | 35 | 1 2 3 4 5 |
| 55 | 8192 | 8202 | 8211 | 8221 | 8231 | 8241 | 8251 | 8261 | 8271 | 8281 | 8290 | 34 | 1 2 3 4 5 |
| 56 | 8290 | 8300 | 8310 | 8320 | 8329 | 8339 | 8348 | 8358 | 8368 | 8377 | 8387 | 33 | 1 2 3 4 5 |
| 57 | 8387 | 8396 | 8406 | 8415 | 8425 | 8434 | 8443 | 8453 | 8462 | 8471 | 8480 | 32 | 1 2 3 4 5 |
| 58 | 8480 | 8490 | 8499 | 8508 | 8517 | 8526 | 8536 | 8545 | 8554 | 8563 | 8572 | 31 | 1 2 3 4 5 |
| 59 | 8572 | 8581 | 8590 | 8599 | 8607 | 8616 | 8625 | 8634 | 8643 | 8652 | 0.8660 | 30° | 1 2 3 4 4 |
| 60° | 0.8660 | 8669 | 8678 | 8686 | 8695 | 8704 | 8712 | 8721 | 8729 | 8738 | 8746 | 29 | 1 2 3 3 4 |
| 61 | 8746 | 8755 | 8763 | 8771 | 8780 | 8788 | 8796 | 8805 | 8813 | 8821 | 8829 | 28 | 1 2 2 3 4 |
| 62 | 8829 | 8838 | 8846 | 8854 | 8862 | 8870 | 8878 | 8886 | 8894 | 8902 | 8910 | 27 | 1 2 2 3 4 |
| 63 | 8910 | 8918 | 8926 | 8934 | 8942 | 8949 | 8957 | 8965 | 8973 | 8980 | 8988 | 26 | 1 2 2 3 4 |
| 64 | 8988 | 8996 | 9003 | 9011 | 9018 | 9026 | 9033 | 9041 | 9048 | 9056 | 9063 | 25 | 1 2 2 3 4 |
| 65 | 9063 | 9070 | 9078 | 9085 | 9092 | 9100 | 9107 | 9114 | 9121 | 9128 | 9135 | 24 | 1 1 2 3 4 |
| 66 | 9135 | 9143 | 9150 | 9157 | 9164 | 9171 | 9178 | 9184 | 9191 | 9198 | 9205 | 23 | 1 1 2 3 3 |
| 67 | 9205 | 9212 | 9219 | 9225 | 9232 | 9239 | 9245 | 9252 | 9259 | 9265 | 9272 | 22 | 1 1 2 3 3 |
| 68 | 9272 | 9278 | 9285 | 9291 | 9298 | 9304 | 9311 | 9317 | 9323 | 9330 | 9336 | 21 | 1 1 2 3 3 |
| 69 | 9336 | 9342 | 9348 | 9354 | 9361 | 9367 | 9373 | 9379 | 9385 | 9391 | 0.9397 | 20° | 1 1 2 2 3 |
| 70° | 0.9397 | 9403 | 9409 | 9415 | 9421 | 9426 | 9432 | 9438 | 9444 | 9449 | 9455 | 19 | 1 1 2 2 3 |
| 71 | 9455 | 9461 | 9466 | 9472 | 9478 | 9483 | 9489 | 9494 | 9500 | 9505 | 9511 | 18 | 1 1 2 2 3 |
| 72 | 9511 | 9516 | 9521 | 9527 | 9532 | 9537 | 9542 | 9548 | 9553 | 9558 | 9563 | 17 | 1 1 2 2 3 |
| 73 | 9563 | 9568 | 9573 | 9578 | 9583 | 9588 | 9593 | 9598 | 9603 | 9608 | 9613 | 16 | 0 1 1 2 2 |
| 74 | 9613 | 9617 | 9622 | 9627 | 9632 | 9636 | 9641 | 9646 | 9650 | 9655 | 9659 | 15 | 0 1 1 2 2 |
| 75 | 9659 | 9664 | 9668 | 9673 | 9677 | 9681 | 9686 | 9690 | 9694 | 9699 | 9703 | 14 | 0 1 1 2 2 |
| 76 | 9703 | 9707 | 9711 | 9715 | 9720 | 9724 | 9728 | 9732 | 9736 | 9740 | 9744 | 13 | 0 1 1 2 2 |
| 77 | 9744 | 9748 | 9751 | 9755 | 9759 | 9763 | 9767 | 9770 | 9774 | 9778 | 9781 | 12 | 0 1 1 2 2 |
| 78 | 9781 | 9785 | 9789 | 9792 | 9796 | 9799 | 9803 | 9806 | 9810 | 9813 | 9816 | 11 | 0 1 1 1 2 |
| 79 | 9816 | 9820 | 9823 | 9826 | 9829 | 9833 | 9836 | 9839 | 9842 | 9845 | 0.9848 | 10° | 0 1 1 1 2 |
| 80° | 0.9848 | 9851 | 9854 | 9857 | 9860 | 9863 | 9866 | 9869 | 9871 | 9874 | 9877 | 9 | 0 1 1 1 1 |
| 81 | 9877 | 9880 | 9882 | 9885 | 9888 | 9890 | 9893 | 9895 | 9898 | 9900 | 9903 | 8 | 0 1 1 1 1 |
| 82 | 9903 | 9905 | 9907 | 9910 | 9912 | 9914 | 9917 | 9919 | 9921 | 9923 | 9925 | 7 | 0 0 1 1 1 |
| 83 | 9925 | 9928 | 9930 | 9932 | 9934 | 9936 | 9938 | 9940 | 9942 | 9943 | 9945 | 6 | 0 0 1 1 1 |
| 84 | 9945 | 9947 | 9949 | 9951 | 9952 | 9954 | 9956 | 9957 | 9959 | 9960 | 9962 | 5 | 0 0 1 1 1 |
| 85 | 9962 | 9963 | 9965 | 9966 | 9968 | 9969 | 9971 | 9972 | 9973 | 9974 | 9976 | 4 | 0 0 0 1 1 |
| 86 | 9976 | 9977 | 9978 | 9979 | 9980 | 9981 | 9982 | 9983 | 9984 | 9985 | 9986 | 3 | 0 0 0 0 1 |
| 87 | 9986 | 9987 | 9988 | 9989 | 9990 | 9990 | 9991 | 9992 | 9993 | 9993 | 9994 | 2 | 0 0 0 0 0 |
| 88 | 9994 | 9995 | 9995 | 9996 | 9996 | 9997 | 9997 | 9997 | 9998 | 9998 | 0.9998 | 1 | 0 0 0 0 0 |
| 89 | 0.9998 | 9999 | 9999 | 9999 | 9999 | 0000 | 0000 | 0000 | 0000 | 0000 | 1.0000 | 0° | 0 0 0 0 0 |
| 90° | 1.0000 | | | | | | | | | | | | |



7/65

# Tangent — Cotangent

| | .0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | | | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.000000 | 90° | | | | | |
| 0° | 0.000000 | 001745 | 003491 | 005236 | 006981 | 008727 | 010472 | 012218 | 013964 | 015709 | 017455 | 89 | 175 | 349 | 524 | 698 | 873 |
| 1 | 01746 | 01920 | 02095 | 02269 | 02444 | 02619 | 02793 | 02968 | 03143 | 03317 | 03492 | 88 | 17 | 35 | 52 | 70 | 87 |
| 2 | 03492 | 03667 | 03842 | 04016 | 04191 | 04366 | 04541 | 04716 | 04891 | 05066 | 05241 | 87 | 17 | 35 | 52 | 70 | 87 |
| 3 | 05241 | 05416 | 05591 | 05766 | 05941 | 06116 | 06291 | 06467 | 06642 | 06817 | 06993 | 86 | 18 | 35 | 53 | 70 | 88 |
| 4 | 06993 | 07168 | 07344 | 07519 | 07695 | 07870 | 08046 | 08221 | 08397 | 08573 | 08749 | 85 | 18 | 35 | 53 | 70 | 88 |
| 5 | 08749 | 08925 | 09101 | 09277 | 09453 | 09629 | 09805 | 09981 | 10158 | 10334 | 10510 | 84 | 18 | 35 | 53 | 70 | 88 |
| 6 | 10510 | 10687 | 10863 | 11040 | 11217 | 11394 | 11570 | 11747 | 11924 | 12101 | 12278 | 83 | 18 | 35 | 53 | 71 | 88 |
| 7 | 12278 | 12456 | 12633 | 12810 | 12988 | 13165 | 13343 | 13521 | 13698 | 13876 | 14054 | 82 | 18 | 36 | 53 | 71 | 89 |
| 8 | 14054 | 14232 | 14410 | 14588 | 14767 | 14945 | 15124 | 15302 | 15481 | 15660 | 15838 | 81 | 18 | 36 | 54 | 71 | 89 |
| 9 | 15838 | 16017 | 16196 | 16376 | 16555 | 16734 | 16914 | 17093 | 17273 | 17453 | 0.17633 | 80° | 18 | 36 | 54 | 72 | 90 |
| 10° | 0.1763 | 1781 | 1799 | 1817 | 1835 | 1853 | 1871 | 1890 | 1908 | 1926 | 1944 | 79 | 2 | 4 | 5 | 7 | 9 |
| 11 | 1944 | 1962 | 1980 | 1998 | 2016 | 2035 | 2053 | 2071 | 2089 | 2107 | 2126 | 78 | 2 | 4 | 5 | 7 | 9 |
| 12 | 2126 | 2144 | 2162 | 2180 | 2199 | 2217 | 2235 | 2254 | 2272 | 2290 | 2309 | 77 | 2 | 4 | 5 | 7 | 9 |
| 13 | 2309 | 2327 | 2345 | 2364 | 2382 | 2401 | 2419 | 2438 | 2456 | 2475 | 2493 | 76 | 2 | 4 | 6 | 7 | 9 |
| 14 | 2493 | 2512 | 2530 | 2549 | 2568 | 2586 | 2605 | 2623 | 2642 | 2661 | 2679 | 75 | 2 | 4 | 6 | 7 | 9 |
| 15 | 2679 | 2698 | 2717 | 2736 | 2754 | 2773 | 2792 | 2811 | 2830 | 2849 | 2867 | 74 | 2 | 4 | 6 | 8 | 9 |
| 16 | 2867 | 2886 | 2905 | 2924 | 2943 | 2962 | 2981 | 3000 | 3019 | 3038 | 3057 | 73 | 2 | 4 | 6 | 8 | 9 |
| 17 | 3057 | 3076 | 3096 | 3115 | 3134 | 3153 | 3172 | 3191 | 3211 | 3230 | 3249 | 72 | 2 | 4 | 6 | 8 | 10 |
| 18 | 3249 | 3269 | 3288 | 3307 | 3327 | 3346 | 3365 | 3385 | 3404 | 3424 | 3443 | 71 | 2 | 4 | 6 | 8 | 10 |
| 19 | 3443 | 3463 | 3482 | 3502 | 3522 | 3541 | 3561 | 3581 | 3600 | 3620 | 0.3640 | 70° | 2 | 4 | 6 | 8 | 10 |
| 20° | 0.3640 | 3659 | 3679 | 3699 | 3719 | 3739 | 3759 | 3779 | 3799 | 3819 | 3839 | 69 | 2 | 4 | 6 | 8 | 10 |
| 21 | 3839 | 3859 | 3879 | 3899 | 3919 | 3939 | 3959 | 3979 | 4000 | 4020 | 4040 | 68 | 2 | 4 | 6 | 8 | 10 |
| 22 | 4040 | 4061 | 4081 | 4101 | 4122 | 4142 | 4163 | 4183 | 4204 | 4224 | 4245 | 67 | 2 | 4 | 6 | 8 | 10 |
| 23 | 4245 | 4265 | 4286 | 4307 | 4327 | 4348 | 4369 | 4390 | 4411 | 4431 | 4452 | 66 | 2 | 4 | 6 | 8 | 10 |
| 24 | 4452 | 4473 | 4494 | 4515 | 4536 | 4557 | 4578 | 4599 | 4621 | 4642 | 4663 | 65 | 2 | 4 | 6 | 8 | 11 |
| 25 | 4663 | 4684 | 4706 | 4727 | 4748 | 4770 | 4791 | 4813 | 4834 | 4856 | 4877 | 64 | 2 | 4 | 6 | 9 | 11 |
| 26 | 4877 | 4899 | 4921 | 4942 | 4964 | 4986 | 5008 | 5029 | 5051 | 5073 | 5095 | 63 | 2 | 4 | 7 | 9 | 11 |
| 27 | 5095 | 5117 | 5139 | 5161 | 5184 | 5206 | 5228 | 5250 | 5272 | 5295 | 5317 | 62 | 2 | 4 | 7 | 9 | 11 |
| 28 | 5317 | 5340 | 5362 | 5384 | 5407 | 5430 | 5452 | 5475 | 5498 | 5520 | 5543 | 61 | 2 | 5 | 7 | 9 | 11 |
| 29 | 5543 | 5566 | 5589 | 5612 | 5635 | 5658 | 5681 | 5704 | 5727 | 5750 | 0.5774 | 60° | 2 | 5 | 7 | 9 | 12 |
| 30° | 0.5774 | 5797 | 5820 | 5844 | 5867 | 5890 | 5914 | 5938 | 5961 | 5985 | 6009 | 59 | 2 | 5 | 7 | 9 | 12 |
| 31 | 6009 | 6032 | 6056 | 6080 | 6104 | 6128 | 6152 | 6176 | 6200 | 6224 | 6249 | 58 | 2 | 5 | 7 | 10 | 12 |
| 32 | 6249 | 6273 | 6297 | 6322 | 6346 | 6371 | 6395 | 6420 | 6445 | 6469 | 6494 | 57 | 2 | 5 | 7 | 10 | 12 |
| 33 | 6494 | 6519 | 6544 | 6569 | 6594 | 6619 | 6644 | 6669 | 6694 | 6720 | 6745 | 56 | 3 | 5 | 8 | 10 | 13 |
| 34 | 6745 | 6771 | 6796 | 6822 | 6847 | 6873 | 6899 | 6924 | 6950 | 6976 | 7002 | 55 | 3 | 5 | 8 | 10 | 13 |
| 35 | 7002 | 7028 | 7054 | 7080 | 7107 | 7133 | 7159 | 7186 | 7212 | 7239 | 7265 | 54 | 3 | 5 | 8 | 11 | 13 |
| 36 | 7265 | 7292 | 7319 | 7346 | 7373 | 7400 | 7427 | 7454 | 7481 | 7508 | 7536 | 53 | 3 | 5 | 8 | 11 | 14 |
| 37 | 7536 | 7563 | 7590 | 7618 | 7646 | 7673 | 7701 | 7729 | 7757 | 7785 | 7813 | 52 | 3 | 6 | 8 | 11 | 14 |
| 38 | 7813 | 7841 | 7869 | 7898 | 7926 | 7954 | 7983 | 8012 | 8040 | 8069 | 8098 | 51 | 3 | 6 | 9 | 11 | 14 |
| 39 | 8098 | 8127 | 8156 | 8185 | 8214 | 8243 | 8273 | 8302 | 8332 | 8361 | 0.8391 | 50° | 3 | 6 | 9 | 12 | 15 |
| 40° | 0.8391 | 8421 | 8451 | 8481 | 8511 | 8541 | 8571 | 8601 | 8632 | 8662 | 8693 | 49 | 3 | 6 | 9 | 12 | 15 |
| 41 | 8693 | 8724 | 8754 | 8785 | 8816 | 8847 | 8878 | 8910 | 8941 | 8972 | 9004 | 48 | 3 | 6 | 9 | 12 | 16 |
| 42 | 9004 | 9036 | 9067 | 9099 | 9131 | 9163 | 9195 | 9228 | 9260 | 9293 | 9325 | 47 | 3 | 6 | 10 | 13 | 16 |
| 43 | 9325 | 9358 | 9391 | 9424 | 9457 | 9490 | 9523 | 9556 | 9590 | 9623 | 0.9657 | 46 | 3 | 7 | 10 | 13 | 17 |
| 44 | 0.9657 | 9691 | 9725 | 9759 | 9793 | 9827 | 9861 | 9896 | 9930 | 9965 | 1.0000 | 45° | 3 | 7 | 10 | 14 | 17 |
| 45° | 1.0000 | | | | | | | | | | | | | | | | |

# Tangent — Cotangent

| | .0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | .0 | | Tenths of the Tabular Difference 1 2 3 4 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 1.0000 | 45° | |
| 45° | 1.0000 | 0035 | 0070 | 0105 | 0141 | 0176 | 0212 | 0247 | 0283 | 0319 | 0355 | 44 | 4 7 11 14 18 |
| 46 | 0355 | 0392 | 0428 | 0464 | 0501 | 0538 | 0575 | 0612 | 0649 | 0686 | 0724 | 43 | 4 7 11 15 18 |
| 47 | 0724 | 0761 | 0799 | 0837 | 0875 | 0913 | 0951 | 0990 | 1028 | 1067 | 1106 | 42 | 4 8 11 15 19 |
| 48 | 1106 | 1145 | 1184 | 1224 | 1263 | 1303 | 1343 | 1383 | 1423 | 1463 | 1504 | 41 | 4 8 12 16 20 |
| 49 | 1504 | 1544 | 1585 | 1626 | 1667 | 1708 | 1750 | 1792 | 1833 | 1875 | 1.1918 | 40° | 4 8 12 17 21 |
| 50° | 1.1918 | 1960 | 2002 | 2045 | 2088 | 2131 | 2174 | 2218 | 2261 | 2305 | 2349 | 39 | 4 9 13 17 22 |
| 51 | 2349 | 2393 | 2437 | 2482 | 2527 | 2572 | 2617 | 2662 | 2708 | 2753 | 2799 | 38 | 5 9 14 18 23 |
| 52 | 2799 | 2846 | 2892 | 2938 | 2985 | 3032 | 3079 | 3127 | 3175 | 3222 | 3270 | 37 | 5 9 14 19 24 |
| 53 | 3270 | 3319 | 3367 | 3416 | 3465 | 3514 | 3564 | 3613 | 3663 | 3713 | 3764 | 36 | 5 10 15 20 25 |
| 54 | 3764 | 3814 | 3865 | 3916 | 3968 | 4019 | 4071 | 4124 | 4176 | 4229 | 1.4281 | 35 | 5 10 16 21 26 |
| 55 | 1.4281 | 4335 | 4388 | 4442 | 4496 | 4550 | 4605 | 4659 | 4715 | 4770 | 4826 | 34 | 5 11 16 22 27 |
| 56 | 4826 | 4882 | 4938 | 4994 | 5051 | 5108 | 5166 | 5224 | 5282 | 5340 | 5399 | 33 | 6 11 17 23 29 |
| 57 | 5399 | 5458 | 5517 | 5577 | 5637 | 5697 | 5757 | 5818 | 5880 | 5941 | 6003 | 32 | 6 12 18 24 30 |
| 58 | 6003 | 6066 | 6128 | 6191 | 6255 | 6319 | 6383 | 6447 | 6512 | 6577 | 6643 | 31 | 6 13 19 26 32 |
| 59 | 1.6643 | 6709 | 6775 | 6842 | 6909 | 6977 | 7045 | 7113 | 7182 | 7251 | 1.7321 | 30° | 7 14 20 27 34 |
| 60° | 1.732 | 1.739 | 1.746 | 1.753 | 1.760 | 1.767 | 1.775 | 1.782 | 1.789 | 1.797 | 1.804 | 29 | 1 1 2 3 4 |
| 61 | 1.804 | 1.811 | 1.819 | 1.827 | 1.834 | 1.842 | 1.849 | 1.857 | 1.865 | 1.873 | 1.881 | 28 | 1 2 2 3 4 |
| 62 | 1.881 | 1.889 | 1.897 | 1.905 | 1.913 | 1.921 | 1.929 | 1.937 | 1.946 | 1.954 | 1.963 | 27 | 1 2 2 3 4 |
| 63 | 1.963 | 1.971 | 1.980 | 1.988 | 1.997 | 2.006 | 2.014 | 2.023 | 2.032 | 2.041 | 2.050 | 26 | 1 2 3 4 4 |
| 64 | 2.050 | 2.059 | 2.069 | 2.078 | 2.087 | 2.097 | 2.106 | 2.116 | 2.125 | 2.135 | 2.145 | 25 | 1 2 3 4 5 |
| 65 | 2.145 | 2.154 | 2.164 | 2.174 | 2.184 | 2.194 | 2.204 | 2.215 | 2.225 | 2.236 | 2.246 | 24 | 1 2 3 4 5 |
| 66 | 2.246 | 2.257 | 2.267 | 2.278 | 2.289 | 2.300 | 2.311 | 2.322 | 2.333 | 2.344 | 2.356 | 23 | 1 2 3 4 5 |
| 67 | 2.356 | 2.367 | 2.379 | 2.391 | 2.402 | 2.414 | 2.426 | 2.438 | 2.450 | 2.463 | 2.475 | 22 | 1 2 4 5 6 |
| 68 | 2.475 | 2.488 | 2.500 | 2.513 | 2.526 | 2.539 | 2.552 | 2.565 | 2.578 | 2.592 | 2.605 | 21 | 1 3 4 5 7 |
| 69 | 2.605 | 2.619 | 2.633 | 2.646 | 2.660 | 2.675 | 2.689 | 2.703 | 2.718 | 2.733 | 2.747 | 20° | 1 3 4 6 7 |
| 70° | 2.747 | 2.762 | 2.778 | 2.793 | 2.808 | 2.824 | 2.840 | 2.856 | 2.872 | 2.888 | 2.904 | 19 | 2 3 5 6 8 |
| 71 | 2.904 | 2.921 | 2.937 | 2.954 | 2.971 | 2.989 | 3.006 | 3.024 | 3.042 | 3.060 | 3.078 | 18 | 2 3 5 7 9 |
| 72 | 3.078 | 3.096 | 3.115 | 3.133 | 3.152 | 3.172 | 3.191 | 3.211 | 3.230 | 3.251 | 3.271 | 17 | 2 4 6 8 10 |
| 73 | 3.271 | 3.291 | 3.312 | 3.333 | 3.354 | 3.376 | 3.398 | 3.420 | 3.442 | 3.465 | 3.487 | 16 | 2 4 6 9 11 |
| 74 | 3.487 | 3.511 | 3.534 | 3.558 | 3.582 | 3.606 | 3.630 | 3.655 | 3.681 | 3.706 | 3.732 | 15 | 2 5 7 10 12 |
| 75 | 3.732 | 3.758 | 3.785 | 3.812 | 3.839 | 3.867 | 3.895 | 3.923 | 3.952 | 3.981 | 4.011 | 14 | 3 6 8 11 14 |
| 76 | 4.011 | 4.041 | 4.071 | 4.102 | 4.134 | 4.165 | 4.198 | 4.230 | 4.264 | 4.297 | 4.331 | 13 | 3 6 10 13 16 |
| 77 | 4.331 | 4.366 | 4.402 | 4.437 | 4.474 | 4.511 | 4.548 | 4.586 | 4.625 | 4.665 | 4.705 | 12 | |
| 78 | 4.705 | 4.745 | 4.787 | 4.829 | 4.872 | 4.915 | 4.959 | 5.005 | 5.050 | 5.097 | 5.145 | 11 | |
| 79 | 5.145 | 5.193 | 5.242 | 5.292 | 5.343 | 5.396 | 5.449 | 5.503 | 5.558 | 5.614 | 5.671 | 10° | |
| 80° | 5.671 | 5.730 | 5.789 | 5.850 | 5.912 | 5.976 | 6.041 | 6.107 | 6.174 | 6.243 | 6.314 | 9 | |
| 81 | 6.314 | 6.386 | 6.460 | 6.535 | 6.612 | 6.691 | 6.772 | 6.855 | 6.940 | 7.026 | 7.115 | 8 | |
| 82 | 7.115 | 7.207 | 7.300 | 7.396 | 7.495 | 7.596 | 7.700 | 7.806 | 7.916 | 8.028 | 8.144 | 7 | |
| 83 | 8.144 | 8.264 | 8.386 | 8.513 | 8.643 | 8.777 | 8.915 | 9.058 | 9.205 | 9.357 | 9.514 | 6 | |
| 84 | 9.514 | 9.677 | 9.845 | 10.019 | 10.199 | 10.385 | 10.579 | 10.780 | 10.988 | 11.205 | 11.430 | 5 | |
| 85 | 11.430 | 11.664 | 11.909 | 12.163 | 12.429 | 12.706 | 12.996 | 13.300 | 13.617 | 13.951 | 14.301 | 4 | |
| 86 | 14.301 | 14.669 | 15.056 | 15.464 | 15.895 | 16.350 | 16.832 | 17.343 | 17.886 | 18.464 | 19.081 | 3 | |
| 87 | 19.08 | 19.74 | 20.45 | 21.20 | 22.02 | 22.90 | 23.86 | 24.90 | 26.03 | 27.27 | 28.64 | 2 | |
| 88 | 28.64 | 30.14 | 31.82 | 33.69 | 35.80 | 38.19 | 40.92 | 44.07 | 47.74 | 52.08 | 57.29 | 1 | |
| 89 | 57.29 | 63.66 | 71.62 | 81.85 | 95.49 | 114.59 | 143.24 | 191.0 | 286.5 | 573.0 | ∞ | 0° | |
| 90° | ∞ | | | | | | | | | | | | |

Range of Differences

35—40
40—48
48—57
59—71
72—89
92—116
120—157

Interpolation accurate, except the last figure

Interpolation not accurate

## Secant — Cosecant

| | .0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | .0 | | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 1.0000 | 90° | | | | | |
| 0° | 1.0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0001 | 0001 | 0001 | 0001 | 0002 | 89 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0002 | 0002 | 0002 | 0003 | 0003 | 0003 | 0004 | 0004 | 0005 | 0006 | 0006 | 88 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0006 | 0007 | 0007 | 0008 | 0009 | 0010 | 0010 | 0011 | 0012 | 0013 | 0014 | 87 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0014 | 0015 | 0016 | 0017 | 0018 | 0019 | 0020 | 0021 | 0022 | 0023 | 0024 | 86 | 0 | 0 | 0 | 0 | 1 |
| 4 | 0024 | 0026 | 0027 | 0028 | 0030 | 0031 | 0032 | 0034 | 0035 | 0037 | 0038 | 85 | 0 | 0 | 0 | 1 | 1 |
| 5 | 0038 | 0040 | 0041 | 0043 | 0045 | 0046 | 0048 | 0050 | 0051 | 0053 | 0055 | 84 | 0 | 0 | 1 | 1 | 1 |
| 6 | 0055 | 0057 | 0059 | 0061 | 0063 | 0065 | 0067 | 0069 | 0071 | 0073 | 0075 | 83 | 0 | 0 | 1 | 1 | 1 |
| 7 | 0075 | 0077 | 0079 | 0082 | 0084 | 0086 | 0089 | 0091 | 0093 | 0096 | 0098 | 82 | 0 | 0 | 1 | 1 | 1 |
| 8 | 0098 | 0101 | 0103 | 0106 | 0108 | 0111 | 0114 | 0116 | 0119 | 0122 | 0125 | 81 | 0 | 1 | 1 | 1 | 1 |
| 9 | 0125 | 0127 | 0130 | 0133 | 0136 | 0139 | 0142 | 0145 | 0148 | 0151 | 1.0154 | 80° | 0 | 1 | 1 | 1 | 1 |
| 10° | 1.0154 | 0157 | 0161 | 0164 | 0167 | 0170 | 0174 | 0177 | 0180 | 0184 | 0187 | 79 | 0 | 1 | 1 | 1 | 2 |
| 11 | 0187 | 0191 | 0194 | 0198 | 0201 | 0205 | 0209 | 0212 | 0216 | 0220 | 0223 | 78 | 0 | 1 | 1 | 1 | 2 |
| 12 | 0223 | 0227 | 0231 | 0235 | 0239 | 0243 | 0247 | 0251 | 0255 | 0259 | 0263 | 77 | 0 | 1 | 1 | 2 | 2 |
| 13 | 0263 | 0267 | 0271 | 0276 | 0280 | 0284 | 0288 | 0293 | 0297 | 0302 | 0306 | 76 | 0 | 1 | 1 | 2 | 2 |
| 14 | 0306 | 0311 | 0315 | 0320 | 0324 | 0329 | 0334 | 0338 | 0343 | 0348 | 0353 | 75 | 1 | 1 | 1 | 2 | 2 |
| 15 | 0353 | 0358 | 0363 | 0367 | 0372 | 0377 | 0382 | 0388 | 0393 | 0398 | 0403 | 74 | 1 | 1 | 2 | 2 | 3 |
| 16 | 0403 | 0408 | 0413 | 0419 | 0424 | 0429 | 0435 | 0440 | 0446 | 0451 | 0457 | 73 | 1 | 1 | 2 | 2 | 3 |
| 17 | 0457 | 0463 | 0468 | 0474 | 0480 | 0485 | 0491 | 0497 | 0503 | 0509 | 0515 | 72 | 1 | 1 | 2 | 2 | 3 |
| 18 | 0515 | 0521 | 0527 | 0533 | 0539 | 0545 | 0551 | 0557 | 0564 | 0570 | 0576 | 71 | 1 | 1 | 2 | 2 | 3 |
| 19 | 0576 | 0583 | 0589 | 0595 | 0602 | 0608 | 0615 | 0622 | 0628 | 0635 | 1.0642 | 70° | 1 | 1 | 2 | 3 | 3 |
| 20° | 1.0642 | 0649 | 0655 | 0662 | 0669 | 0676 | 0683 | 0690 | 0697 | 0704 | 0711 | 69 | 1 | 1 | 2 | 3 | 3 |
| 21 | 0711 | 0719 | 0726 | 0733 | 0740 | 0748 | 0755 | 0763 | 0770 | 0778 | 0785 | 68 | 1 | 1 | 2 | 3 | 4 |
| 22 | 0785 | 0793 | 0801 | 0808 | 0816 | 0824 | 0832 | 0840 | 0848 | 0856 | 0864 | 67 | 1 | 2 | 2 | 3 | 4 |
| 23 | 0864 | 0872 | 0880 | 0888 | 0896 | 0904 | 0913 | 0921 | 0929 | 0938 | 0946 | 66 | 1 | 2 | 2 | 3 | 4 |
| 24 | 0946 | 0955 | 0963 | 0972 | 0981 | 0989 | 0998 | 1007 | 1016 | 1025 | 1034 | 65 | 1 | 2 | 3 | 3 | 4 |
| 25 | 1034 | 1043 | 1052 | 1061 | 1070 | 1079 | 1089 | 1098 | 1107 | 1117 | 1126 | 64 | 1 | 2 | 3 | 4 | 5 |
| 26 | 1126 | 1136 | 1145 | 1155 | 1164 | 1174 | 1184 | 1194 | 1203 | 1213 | 1223 | 63 | 1 | 2 | 3 | 4 | 5 |
| 27 | 1223 | 1233 | 1243 | 1253 | 1264 | 1274 | 1284 | 1294 | 1305 | 1315 | 1326 | 62 | 1 | 2 | 3 | 4 | 5 |
| 28 | 1326 | 1336 | 1347 | 1357 | 1368 | 1379 | 1390 | 1401 | 1412 | 1423 | 1434 | 61 | 1 | 2 | 3 | 4 | 5 |
| 29 | 1434 | 1445 | 1456 | 1467 | 1478 | 1490 | 1501 | 1512 | 1524 | 1535 | 1.1547 | 60° | 1 | 2 | 3 | 5 | 6 |
| 30° | 1.1547 | 1559 | 1570 | 1582 | 1594 | 1606 | 1618 | 1630 | 1642 | 1654 | 1666 | 59 | 1 | 2 | 4 | 5 | 6 |
| 31 | 1666 | 1679 | 1691 | 1703 | 1716 | 1728 | 1741 | 1753 | 1766 | 1779 | 1792 | 58 | 1 | 3 | 4 | 5 | 6 |
| 32 | 1792 | 1805 | 1818 | 1831 | 1844 | 1857 | 1870 | 1883 | 1897 | 1910 | 1924 | 57 | 1 | 3 | 4 | 5 | 7 |
| 33 | 1924 | 1937 | 1951 | 1964 | 1978 | 1992 | 2006 | 2020 | 2034 | 2048 | 2062 | 56 | 1 | 3 | 4 | 6 | 7 |
| 34 | 2062 | 2076 | 2091 | 2105 | 2120 | 2134 | 2149 | 2163 | 2178 | 2193 | 2208 | 55 | 1 | 3 | 4 | 6 | 7 |
| 35 | 2208 | 2223 | 2238 | 2253 | 2268 | 2283 | 2299 | 2314 | 2329 | 2345 | 2361 | 54 | 2 | 3 | 5 | 6 | 8 |
| 36 | 2361 | 2376 | 2392 | 2408 | 2424 | 2440 | 2456 | 2472 | 2489 | 2505 | 2521 | 53 | 2 | 3 | 5 | 6 | 8 |
| 37 | 2521 | 2538 | 2554 | 2571 | 2588 | 2605 | 2622 | 2639 | 2656 | 2673 | 2690 | 52 | 2 | 3 | 5 | 7 | 8 |
| 38 | 2690 | 2708 | 2725 | 2742 | 2760 | 2778 | 2796 | 2813 | 2831 | 2849 | 2868 | 51 | 2 | 4 | 5 | 7 | 9 |
| 39 | 2868 | 2886 | 2904 | 2923 | 2941 | 2960 | 2978 | 2997 | 3016 | 3035 | 1.3054 | 50° | 2 | 4 | 6 | 7 | 9 |
| 40° | 1.3054 | 3073 | 3093 | 3112 | 3131 | 3151 | 3171 | 3190 | 3210 | 3230 | 3250 | 49 | 2 | 4 | 6 | 8 | 10 |
| 41 | 3250 | 3270 | 3291 | 3311 | 3331 | 3352 | 3373 | 3393 | 3414 | 3435 | 3456 | 48 | 2 | 4 | 6 | 8 | 10 |
| 42 | 3456 | 3478 | 3499 | 3520 | 3542 | 3563 | 3585 | 3607 | 3629 | 3651 | 3673 | 47 | 2 | 4 | 7 | 9 | 11 |
| 43 | 3673 | 3696 | 3718 | 3741 | 3763 | 3786 | 3809 | 3832 | 3855 | 3878 | 3902 | 46 | 2 | 5 | 7 | 9 | 11 |
| 44 | 3902 | 3925 | 3949 | 3972 | 3996 | 4020 | 4044 | 4069 | 4093 | 4118 | 1.4142 | 45° | 2 | 5 | 7 | 10 | 12 |
| 45° | 1.4142 | | | | | | | | | | | | | | | | |

| Secant | .9 | .8 | .7 | .6 | .5 | .4 | .3 | .2 | .1 | 0 | Cosecant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | .0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | |
| | | | | | | | | | | 1.4142 | 45° |
| 45° | 1.4142 | 4167 | 4192 | 4217 | 4242 | 4267 | 4293 | 4318 | 4344 | 4370 | 4396 | 44 |
| 46 | 4396 | 4422 | 4448 | 4474 | 4501 | 4527 | 4554 | 4581 | 4608 | 4635 | 4663 | 43 |
| 47 | 4663 | 4690 | 4718 | 4746 | 4774 | 4802 | 4830 | 4859 | 4887 | 4916 | 4945 | 42 |
| 48 | 4945 | 4974 | 5003 | 5032 | 5062 | 5092 | 5121 | 5151 | 5182 | 5212 | 5243 | 41 |
| 49 | 5243 | 5273 | 5304 | 5335 | 5366 | 5398 | 5429 | 5461 | 5493 | 5525 | 1.5557 | 40° |
| 50° | 1.5557 | 5590 | 5622 | 5655 | 5688 | 5721 | 5755 | 5788 | 5822 | 5856 | 5890 | 39 |
| 51 | 5890 | 5925 | 5959 | 5994 | 6029 | 6064 | 6099 | 6135 | 6171 | 6207 | 6243 | 38 |
| 52 | 6243 | 6279 | 6316 | 6353 | 6390 | 6427 | 6464 | 6502 | 6540 | 6578 | 6616 | 37 |
| 53 | 6616 | 6655 | 6694 | 6733 | 6772 | 6812 | 6852 | 6892 | 6932 | 6972 | 7013 | 36 |
| 54 | 7013 | 7054 | 7095 | 7137 | 7179 | 7221 | 7263 | 7305 | 7348 | 7391 | 1.7434 | 35 |
| 55 | 1.7434 | 7478 | 7522 | 7566 | 7610 | 7655 | 7700 | 7745 | 7791 | 7837 | 7883 | 34 |
| 56 | 7883 | 7929 | 7976 | 8023 | 8070 | 8118 | 8166 | 8214 | 8263 | 8312 | 8361 | 33 |
| 57 | 8361 | 8410 | 8460 | 8510 | 8561 | 8612 | 8663 | 8714 | 8766 | 8818 | 8871 | 32 |
| 58 | 8871 | 8924 | 8977 | 9031 | 9084 | 9139 | 9194 | 9249 | 9304 | 9360 | 1.9416 | 31 |
| 59 | 1.9416 | 9473 | 9530 | 9587 | 9645 | 9703 | 9762 | 9821 | 9880 | 9940 | 2.0000 | 30° |
| 60° | 2.000 | 2.006 | 2.012 | 2.018 | 2.025 | 2.031 | 2.037 | 2.043 | 2.050 | 2.056 | 2.063 | 29 |
| 61 | 2.063 | 2.069 | 2.076 | 2.082 | 2.089 | 2.096 | 2.103 | 2.109 | 2.116 | 2.123 | 2.130 | 28 |
| 62 | 2.130 | 2.137 | 2.144 | 2.151 | 2.158 | 2.166 | 2.173 | 2.180 | 2.188 | 2.195 | 2.203 | 27 |
| 63 | 2.203 | 2.210 | 2.218 | 2.226 | 2.233 | 2.241 | 2.249 | 2.257 | 2.265 | 2.273 | 2.281 | 26 |
| 64 | 2.281 | 2.289 | 2.298 | 2.306 | 2.314 | 2.323 | 2.331 | 2.340 | 2.349 | 2.357 | 2.366 | 25 |
| 65 | 2.366 | 2.375 | 2.384 | 2.393 | 2.402 | 2.411 | 2.421 | 2.430 | 2.439 | 2.449 | 2.459 | 24 |
| 66 | 2.459 | 2.468 | 2.478 | 2.488 | 2.498 | 2.508 | 2.518 | 2.528 | 2.538 | 2.549 | 2.559 | 23 |
| 67 | 2.559 | 2.570 | 2.581 | 2.591 | 2.602 | 2.613 | 2.624 | 2.635 | 2.647 | 2.658 | 2.669 | 22 |
| 68 | 2.669 | 2.681 | 2.693 | 2.705 | 2.716 | 2.729 | 2.741 | 2.753 | 2.765 | 2.778 | 2.790 | 21 |
| 69 | 2.790 | 2.803 | 2.816 | 2.829 | 2.842 | 2.855 | 2.869 | 2.882 | 2.896 | 2.910 | 2.924 | 20° |
| 70° | 2.924 | 2.938 | 2.952 | 2.967 | 2.981 | 2.996 | 3.011 | 3.026 | 3.041 | 3.056 | 3.072 | 19 |
| 71 | 3.072 | 3.087 | 3.103 | 3.119 | 3.135 | 3.152 | 3.168 | 3.185 | 3.202 | 3.219 | 3.236 | 18 |
| 72 | 3.236 | 3.254 | 3.271 | 3.289 | 3.307 | 3.326 | 3.344 | 3.363 | 3.382 | 3.401 | 3.420 | 17 |
| 73 | 3.420 | 3.440 | 3.460 | 3.480 | 3.500 | 3.521 | 3.542 | 3.563 | 3.584 | 3.606 | 3.628 | 16 |
| 74 | 3.628 | 3.650 | 3.673 | 3.695 | 3.719 | 3.742 | 3.766 | 3.790 | 3.814 | 3.839 | 3.864 | 15 |
| 75 | 3.864 | 3.889 | 3.915 | 3.941 | 3.967 | 3.994 | 4.021 | 4.049 | 4.077 | 4.105 | 4.134 | 14 |
| 76 | 4.134 | 4.163 | 4.192 | 4.222 | 4.253 | 4.284 | 4.315 | 4.347 | 4.379 | 4.412 | 4.445 | 13 |
| 77 | 4.445 | 4.479 | 4.514 | 4.549 | 4.584 | 4.620 | 4.657 | 4.694 | 4.732 | 4.771 | 4.810 | 12 |
| 78 | 4.810 | 4.850 | 4.890 | 4.931 | 4.973 | 5.016 | 5.059 | 5.103 | 5.148 | 5.194 | 5.241 | 11 |
| 79 | 5.241 | 5.288 | 5.337 | 5.386 | 5.436 | 5.487 | 5.540 | 5.593 | 5.647 | 5.702 | 5.759 | 10° |
| 80° | 5.759 | 5.816 | 5.875 | 5.935 | 5.996 | 6.059 | 6.123 | 6.188 | 6.255 | 6.323 | 6.392 | 9 |
| 81 | 6.392 | 6.464 | 6.537 | 6.611 | 6.687 | 6.765 | 6.845 | 6.927 | 7.011 | 7.097 | 7.185 | 8 |
| 82 | 7.185 | 7.276 | 7.368 | 7.463 | 7.561 | 7.661 | 7.764 | 7.870 | 7.979 | 8.091 | 8.206 | 7 |
| 83 | 8.206 | 8.324 | 8.446 | 8.571 | 8.700 | 8.834 | 8.971 | 9.113 | 9.259 | 9.411 | 9.567 | 6 |
| 84 | 9.567 | 9.728 | 9.895 | 10.068 | 10.248 | 10.433 | 10.626 | 10.826 | 11.034 | 11.249 | 11.474 | 5 |
| 85 | 11.474 | 11.707 | 11.951 | 12.204 | 12.469 | 12.745 | 13.035 | 13.337 | 13.654 | 13.987 | 14.336 | 4 |
| 86 | 14.336 | 14.703 | 15.089 | 15.496 | 15.926 | 16.380 | 16.862 | 17.372 | 17.914 | 18.492 | 19.107 | 3 |
| 87 | 19.11 | 19.77 | 20.47 | 21.23 | 22.04 | 22.93 | 23.88 | 24.92 | 26.05 | 27.29 | 28.65 | 2 |
| 88 | 28.65 | 30.16 | 31.84 | 33.71 | 35.81 | 38.20 | 40.93 | 44.08 | 47.75 | 52.09 | 57.30 | 1 |
| 89 | 57.30 | 63.66 | 71.62 | 81.85 | 95.49 | 114.59 | 143.24 | 191.0 | 286.5 | 573.0 | ∞ | 0° |
| 90° | ∞ | | | | | | | | | | | |

| Tenths of the Tabular Difference | | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 45° | | | | | |
| 44 | 3 | 5 | 8 | 10 | 13 |
| 43 | 3 | 5 | 8 | 11 | 13 |
| 42 | 3 | 6 | 8 | 11 | 14 |
| 41 | 3 | 6 | 9 | 12 | 15 |
| 40° | 3 | 6 | 9 | 13 | 16 |
| 39 | 3 | 7 | 10 | 13 | 17 |
| 38 | 4 | 7 | 11 | 14 | 18 |
| 37 | 4 | 7 | 11 | 15 | 19 |
| 36 | 4 | 8 | 12 | 16 | 20 |
| 35 | 4 | 8 | 13 | 17 | 21 |
| 34 | 4 | 9 | 13 | 18 | 22 |
| 33 | 5 | 10 | 14 | 19 | 24 |
| 32 | 5 | 10 | 15 | 20 | 26 |
| 31 | 5 | 11 | 16 | 22 | 27 |
| 30° | 6 | 12 | 18 | 23 | 29 |
| 29 | 1 | 1 | 2 | 3 | 3 |
| 28 | 1 | 1 | 2 | 3 | 3 |
| 27 | 1 | 1 | 2 | 3 | 4 |
| 26 | 1 | 2 | 2 | 3 | 4 |
| 25 | 1 | 2 | 3 | 3 | 4 |
| 24 | 1 | 2 | 3 | 4 | 5 |
| 23 | 1 | 2 | 3 | 4 | 5 |
| 22 | 1 | 2 | 3 | 4 | 6 |
| 21 | 1 | 2 | 4 | 5 | 6 |
| 20° | 1 | 3 | 4 | 5 | 7 |
| 19 | 1 | 3 | 4 | 6 | 7 |
| 18 | 2 | 3 | 5 | 7 | 8 |
| 17 | 2 | 4 | 6 | 7 | 9 |
| 16 | 2 | 4 | 6 | 8 | 10 |
| 15 | 2 | 5 | 7 | 9 | 12 |
| 14 | 3 | 5 | 8 | 11 | 13 |
| 13 | 3 | 6 | 9 | 12 | 16 |

Range of Differences

| | |
|---|---|
| 34—39 | |
| 40—47 | |
| 47—57 | |
| 57—69 | |
| 72—88 | |
| 91—115 | |
| 118—156 | |

Interpolation accurate, except the last figure

Interpolation not accurate

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.00** | 0.0000 | 0004 | 0009 | 0013 | 0017 | 0022 | 0026 | 0030 | 0035 | 0039 | 0043 |
| 1.01 | 0043 | 0048 | 0052 | 0056 | 0060 | 0065 | 0069 | 0073 | 0077 | 0082 | 0086 |
| 1.02 | 0086 | 0090 | 0095 | 0099 | 0103 | 0107 | 0111 | 0116 | 0120 | 0124 | 0128 |
| 1.03 | 0128 | 0133 | 0137 | 0141 | 0145 | 0149 | 0154 | 0158 | 0162 | 0166 | 0170 |
| 1.04 | 0170 | 0175 | 0179 | 0183 | 0187 | 0191 | 0195 | 0199 | 0204 | 0208 | 0212 |
| 1.05 | 0212 | 0216 | 0220 | 0224 | 0228 | 0233 | 0237 | 0241 | 0245 | 0249 | 0253 |
| 1.06 | 0253 | 0257 | 0261 | 0265 | 0269 | 0273 | 0278 | 0282 | 0286 | 0290 | 0294 |
| 1.07 | 0294 | 0298 | 0302 | 0306 | 0310 | 0314 | 0318 | 0322 | 0326 | 0330 | 0334 |
| 1.08 | 0334 | 0338 | 0342 | 0346 | 0350 | 0354 | 0358 | 0362 | 0366 | 0370 | 0374 |
| 1.09 | 0374 | 0378 | 0382 | 0386 | 0390 | 0394 | 0398 | 0402 | 0406 | 0410 | 0414 |
| **1.10** | 0.0414 | 0418 | 0422 | 0426 | 0430 | 0434 | 0438 | 0441 | 0445 | 0449 | 0453 |
| 1.11 | 0453 | 0457 | 0461 | 0465 | 0469 | 0473 | 0477 | 0481 | 0484 | 0488 | 0492 |
| 1.12 | 0492 | 0496 | 0500 | 0504 | 0508 | 0512 | 0515 | 0519 | 0523 | 0527 | 0531 |
| 1.13 | 0531 | 0535 | 0538 | 0542 | 0546 | 0550 | 0554 | 0558 | 0561 | 0565 | 0569 |
| 1.14 | 0569 | 0573 | 0577 | 0580 | 0584 | 0588 | 0592 | 0596 | 0599 | 0603 | 0607 |
| 1.15 | 0607 | 0611 | 0615 | 0618 | 0622 | 0626 | 0630 | 0633 | 0637 | 0641 | 0645 |
| 1.16 | 0645 | 0648 | 0652 | 0656 | 0660 | 0663 | 0667 | 0671 | 0674 | 0678 | 0682 |
| 1.17 | 0682 | 0686 | 0689 | 0693 | 0697 | 0700 | 0704 | 0708 | 0711 | 0715 | 0719 |
| 1.18 | 0719 | 0722 | 0726 | 0730 | 0734 | 0737 | 0741 | 0745 | 0748 | 0752 | 0755 |
| 1.19 | 0755 | 0759 | 0763 | 0766 | 0770 | 0774 | 0777 | 0781 | 0785 | 0788 | 0792 |
| **1.20** | 0.0792 | 0795 | 0799 | 0803 | 0806 | 0810 | 0813 | 0817 | 0821 | 0824 | 0828 |
| 1.21 | 0828 | 0831 | 0835 | 0839 | 0842 | 0846 | 0849 | 0853 | 0856 | 0860 | 0864 |
| 1.22 | 0864 | 0867 | 0871 | 0874 | 0878 | 0881 | 0885 | 0888 | 0892 | 0896 | 0899 |
| 1.23 | 0899 | 0903 | 0906 | 0910 | 0913 | 0917 | 0920 | 0924 | 0927 | 0931 | 0934 |
| 1.24 | 0934 | 0938 | 0941 | 0945 | 0948 | 0952 | 0955 | 0959 | 0962 | 0966 | 0969 |
| 1.25 | 0969 | 0973 | 0976 | 0980 | 0983 | 0986 | 0990 | 0993 | 0997 | 1000 | 1004 |
| 1.26 | 1004 | 1007 | 1011 | 1014 | 1017 | 1021 | 1024 | 1028 | 1031 | 1035 | 1038 |
| 1.27 | 1038 | 1041 | 1045 | 1048 | 1052 | 1055 | 1059 | 1062 | 1065 | 1069 | 1072 |
| 1.28 | 1072 | 1075 | 1079 | 1082 | 1086 | 1089 | 1092 | 1096 | 1099 | 1103 | 1106 |
| 1.29 | 1106 | 1109 | 1113 | 1116 | 1119 | 1123 | 1126 | 1129 | 1133 | 1136 | 1139 |
| **1.30** | 0.1139 | 1143 | 1146 | 1149 | 1153 | 1156 | 1159 | 1163 | 1166 | 1169 | 1173 |
| 1.31 | 1173 | 1176 | 1179 | 1183 | 1186 | 1189 | 1193 | 1196 | 1199 | 1202 | 1206 |
| 1.32 | 1206 | 1209 | 1212 | 1216 | 1219 | 1222 | 1225 | 1229 | 1232 | 1235 | 1239 |
| 1.33 | 1239 | 1242 | 1245 | 1248 | 1252 | 1255 | 1258 | 1261 | 1265 | 1268 | 1271 |
| 1.34 | 1271 | 1274 | 1278 | 1281 | 1284 | 1287 | 1290 | 1294 | 1297 | 1300 | 1303 |
| 1.35 | 1303 | 1307 | 1310 | 1313 | 1316 | 1319 | 1323 | 1326 | 1329 | 1332 | 1335 |
| 1.36 | 1335 | 1339 | 1342 | 1345 | 1348 | 1351 | 1355 | 1358 | 1361 | 1364 | 1367 |
| 1.37 | 1367 | 1370 | 1374 | 1377 | 1380 | 1383 | 1386 | 1389 | 1392 | 1396 | 1399 |
| 1.38 | 1399 | 1402 | 1405 | 1408 | 1411 | 1414 | 1418 | 1421 | 1424 | 1427 | 1430 |
| 1.39 | 1430 | 1433 | 1436 | 1440 | 1443 | 1446 | 1449 | 1452 | 1455 | 1458 | 1461 |
| **1.40** | 0.1461 | 1464 | 1467 | 1471 | 1474 | 1477 | 1480 | 1483 | 1486 | 1489 | 1492 |
| 1.41 | 1492 | 1495 | 1498 | 1501 | 1504 | 1508 | 1511 | 1514 | 1517 | 1520 | 1523 |
| 1.42 | 1523 | 1526 | 1529 | 1532 | 1535 | 1538 | 1541 | 1544 | 1547 | 1550 | 1553 |
| 1.43 | 1553 | 1556 | 1559 | 1562 | 1565 | 1569 | 1572 | 1575 | 1578 | 1581 | 1584 |
| 1.44 | 1584 | 1587 | 1590 | 1593 | 1596 | 1599 | 1602 | 1605 | 1608 | 1611 | 1614 |
| 1.45 | 1614 | 1617 | 1620 | 1623 | 1626 | 1629 | 1632 | 1635 | 1638 | 1641 | 1644 |
| 1.46 | 1644 | 1647 | 1649 | 1652 | 1655 | 1658 | 1661 | 1664 | 1667 | 1670 | 1673 |
| 1.47 | 1673 | 1676 | 1679 | 1682 | 1685 | 1688 | 1691 | 1694 | 1697 | 1700 | 1703 |
| 1.48 | 1703 | 1706 | 1708 | 1711 | 1714 | 1717 | 1720 | 1723 | 1726 | 1729 | 1732 |
| 1.49 | 1732 | 1735 | 1738 | 1741 | 1744 | 1746 | 1749 | 1752 | 1755 | 1758 | 1761 |

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.50** | 0.1761 | 1764 | 1767 | 1770 | 1772 | 1775 | 1778 | 1781 | 1784 | 1787 | 1790 |
| 1.51 | 1790 | 1793 | 1796 | 1798 | 1801 | 1804 | 1807 | 1810 | 1813 | 1816 | 1818 |
| 1.52 | 1818 | 1821 | 1824 | 1827 | 1830 | 1833 | 1836 | 1838 | 1841 | 1844 | 1847 |
| 1.53 | 1847 | 1850 | 1853 | 1855 | 1858 | 1861 | 1864 | 1867 | 1870 | 1872 | 1875 |
| 1.54 | 1875 | 1878 | 1881 | 1884 | 1886 | 1889 | 1892 | 1895 | 1898 | 1901 | 1903 |
| 1.55 | 1903 | 1906 | 1909 | 1912 | 1915 | 1917 | 1920 | 1923 | 1926 | 1928 | 1931 |
| 1.56 | 1931 | 1934 | 1937 | 1940 | 1942 | 1945 | 1948 | 1951 | 1953 | 1956 | 1959 |
| 1.57 | 1959 | 1962 | 1965 | 1967 | 1970 | 1973 | 1976 | 1978 | 1981 | 1984 | 1987 |
| 1.58 | 1987 | 1989 | 1992 | 1995 | 1998 | 2000 | 2003 | 2006 | 2009 | 2011 | 2014 |
| 1.59 | 2014 | 2017 | 2019 | 2022 | 2025 | 2028 | 2030 | 2033 | 2036 | 2038 | 2041 |
| **1.60** | 0.2041 | 2044 | 2047 | 2049 | 2052 | 2055 | 2057 | 2060 | 2063 | 2066 | 2068 |
| 1.61 | 2068 | 2071 | 2074 | 2076 | 2079 | 2082 | 2084 | 2087 | 2090 | 2092 | 2095 |
| 1.62 | 2095 | 2098 | 2101 | 2103 | 2106 | 2109 | 2111 | 2114 | 2117 | 2119 | 2122 |
| 1.63 | 2122 | 2125 | 2127 | 2130 | 2133 | 2135 | 2138 | 2140 | 2143 | 2146 | 2148 |
| 1.64 | 2148 | 2151 | 2154 | 2156 | 2159 | 2162 | 2164 | 2167 | 2170 | 2172 | 2175 |
| 1.65 | 2175 | 2177 | 2180 | 2183 | 2185 | 2188 | 2191 | 2193 | 2196 | 2198 | 2201 |
| 1.66 | 2201 | 2204 | 2206 | 2209 | 2212 | 2214 | 2217 | 2219 | 2222 | 2225 | 2227 |
| 1.67 | 2227 | 2230 | 2232 | 2235 | 2238 | 2240 | 2243 | 2245 | 2248 | 2251 | 2253 |
| 1.68 | 2253 | 2256 | 2258 | 2261 | 2263 | 2266 | 2269 | 2271 | 2274 | 2276 | 2279 |
| 1.69 | 2279 | 2281 | 2284 | 2287 | 2289 | 2292 | 2294 | 2297 | 2299 | 2302 | 2304 |
| **1.70** | 0.2304 | 2307 | 2310 | 2312 | 2315 | 2317 | 2320 | 2322 | 2325 | 2327 | 2330 |
| 1.71 | 2330 | 2333 | 2335 | 2338 | 2340 | 2343 | 2345 | 2348 | 2350 | 2353 | 2355 |
| 1.72 | 2355 | 2358 | 2360 | 2363 | 2365 | 2368 | 2370 | 2373 | 2375 | 2378 | 2380 |
| 1.73 | 2380 | 2383 | 2385 | 2388 | 2390 | 2393 | 2395 | 2398 | 2400 | 2403 | 2405 |
| 1.74 | 2405 | 2408 | 2410 | 2413 | 2415 | 2418 | 2420 | 2423 | 2425 | 2428 | 2430 |
| 1.75 | 2430 | 2433 | 2435 | 2438 | 2440 | 2443 | 2445 | 2448 | 2450 | 2453 | 2455 |
| 1.76 | 2455 | 2458 | 2460 | 2463 | 2465 | 2467 | 2470 | 2472 | 2475 | 2477 | 2480 |
| 1.77 | 2480 | 2482 | 2485 | 2487 | 2490 | 2492 | 2494 | 2497 | 2499 | 2502 | 2504 |
| 1.78 | 2504 | 2507 | 2509 | 2512 | 2514 | 2516 | 2519 | 2521 | 2524 | 2526 | 2529 |
| 1.79 | 2529 | 2531 | 2533 | 2536 | 2538 | 2541 | 2543 | 2545 | 2548 | 2550 | 2553 |
| **1.80** | 0.2553 | 2555 | 2558 | 2560 | 2562 | 2565 | 2567 | 2570 | 2572 | 2574 | 2577 |
| 1.81 | 2577 | 2579 | 2582 | 2584 | 2586 | 2589 | 2591 | 2594 | 2596 | 2598 | 2601 |
| 1.82 | 2601 | 2603 | 2605 | 2608 | 2610 | 2613 | 2615 | 2617 | 2620 | 2622 | 2625 |
| 1.83 | 2625 | 2627 | 2629 | 2632 | 2634 | 2636 | 2639 | 2641 | 2643 | 2646 | 2648 |
| 1.84 | 2648 | 2651 | 2653 | 2655 | 2658 | 2660 | 2662 | 2665 | 2667 | 2669 | 2672 |
| 1.85 | 2672 | 2674 | 2676 | 2679 | 2681 | 2683 | 2686 | 2688 | 2690 | 2693 | 2695 |
| 1.86 | 2695 | 2697 | 2700 | 2702 | 2704 | 2707 | 2709 | 2711 | 2714 | 2716 | 2718 |
| 1.87 | 2718 | 2721 | 2723 | 2725 | 2728 | 2730 | 2732 | 2735 | 2737 | 2739 | 2742 |
| 1.88 | 2742 | 2744 | 2746 | 2749 | 2751 | 2753 | 2755 | 2758 | 2760 | 2762 | 2765 |
| 1.89 | 2765 | 2767 | 2769 | 2772 | 2774 | 2776 | 2778 | 2781 | 2783 | 2785 | 2788 |
| **1.90** | 0.2788 | 2790 | 2792 | 2794 | 2797 | 2799 | 2801 | 2804 | 2806 | 2808 | 2810 |
| 1.91 | 2810 | 2813 | 2815 | 2817 | 2819 | 2822 | 2824 | 2826 | 2828 | 2831 | 2833 |
| 1.92 | 2833 | 2835 | 2838 | 2840 | 2842 | 2844 | 2847 | 2849 | 2851 | 2853 | 2856 |
| 1.93 | 2856 | 2858 | 2860 | 2862 | 2865 | 2867 | 2869 | 2871 | 2874 | 2876 | 2878 |
| 1.94 | 2878 | 2880 | 2882 | 2885 | 2887 | 2889 | 2891 | 2894 | 2896 | 2898 | 2900 |
| 1.95 | 2900 | 2903 | 2905 | 2907 | 2909 | 2911 | 2914 | 2916 | 2918 | 2920 | 2923 |
| 1.96 | 2923 | 2925 | 2927 | 2929 | 2931 | 2934 | 2936 | 2938 | 2940 | 2942 | 2945 |
| 1.97 | 2945 | 2947 | 2949 | 2951 | 2953 | 2956 | 2958 | 2960 | 2962 | 2964 | 2967 |
| 1.98 | 2967 | 2969 | 2971 | 2973 | 2975 | 2978 | 2980 | 2982 | 2984 | 2986 | 2989 |
| 1.99 | 2989 | 2991 | 2993 | 2995 | 2997 | 2999 | 3002 | 3004 | 3006 | 3008 | 3010 |



log sin & log cos | log tan & log ctn

These two pages give the common logarithms of numbers between 1 and 10, correct to four places. Moving the decimal point $n$ places to the right (or left) in the number is equivalent to adding $n$ (or $-n$) to the logarithm. Thus, $\log 0.017453 = 0.2419 - 2 \; [= \bar{2}.2419]$.

| For any Angle $x$, | When $x$ is between 0° and 1°.1 | When $x$ is between 88°.9 and 90° |
|---|---|---|
| $\log (x \text{ in radians}) =$ | $\log \sin x = \bar{2}.2419 + \log (x^\circ)$ | $\log \cos x = \bar{2}.2419 + \log (90^\circ - x^\circ)$ |
| $\bar{2}.2419 + \log (x^\circ)$ | $\log \tan x = \bar{2}.2419 + \log (x^\circ)$ | $\log \cot x = \bar{2}.2419 + \log (90^\circ - x^\circ)$ |
| | $\log \cot x = 1.7581 - \log (x^\circ)$ | $\log \tan x = 1.7581 - \log (90^\circ - x^\circ)$ |

Log

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Tenths of the Tabular Difference 1 2 3 4 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.0** | 0.0000 | 0043 | 0086 | 0128 | 0170 | 0212 | 0253 | 0294 | 0334 | 0374 | 0414 | |
| 1.1 | 0414 | 0453 | 0492 | 0531 | 0569 | 0607 | 0645 | 0682 | 0719 | 0755 | 0792 | |
| 1.2 | 0792 | 0828 | 0864 | 0899 | 0934 | 0969 | 1004 | 1038 | 1072 | 1106 | 1139 | |
| 1.3 | 1139 | 1173 | 1206 | 1239 | 1271 | 1303 | 1335 | 1367 | 1399 | 1430 | 1461 | To avoid Interpolation in the first ten lines, use the special table on the preceding page. |
| 1.4 | 1461 | 1492 | 1523 | 1553 | 1584 | 1614 | 1644 | 1673 | 1703 | 1732 | 1761 | |
| 1.5 | 1761 | 1790 | 1818 | 1847 | 1875 | 1903 | 1931 | 1959 | 1987 | 2014 | 2041 | |
| 1.6 | 2041 | 2068 | 2095 | 2122 | 2148 | 2175 | 2201 | 2227 | 2253 | 2279 | 2304 | |
| 1.7 | 2304 | 2330 | 2355 | 2380 | 2405 | 2430 | 2455 | 2480 | 2504 | 2529 | 2553 | |
| 1.8 | 2553 | 2577 | 2601 | 2625 | 2648 | 2672 | 2695 | 2718 | 2742 | 2765 | 2788 | |
| 1.9 | 2788 | 2810 | 2833 | 2856 | 2878 | 2900 | 2923 | 2945 | 2967 | 2989 | 3010 | |
| **2.0** | 0.3010 | 3032 | 3054 | 3075 | 3096 | 3118 | 3139 | 3160 | 3181 | 3201 | 3222 | 2 4 6 8 11 |
| 2.1 | 3222 | 3243 | 3263 | 3284 | 3304 | 3324 | 3345 | 3365 | 3385 | 3404 | 3424 | 2 4 6 8 10 |
| 2.2 | 3424 | 3444 | 3464 | 3483 | 3502 | 3522 | 3541 | 3560 | 3579 | 3598 | 3617 | 2 4 6 8 10 |
| 2.3 | 3617 | 3636 | 3655 | 3674 | 3692 | 3711 | 3729 | 3747 | 3766 | 3784 | 3802 | 2 4 5 7 9 |
| 2.4 | 3802 | 3820 | 3838 | 3856 | 3874 | 3892 | 3909 | 3927 | 3945 | 3962 | 3979 | 2 4 5 7 9 |
| 2.5 | 3979 | 3997 | 4014 | 4031 | 4048 | 4065 | 4082 | 4099 | 4116 | 4133 | 4150 | 2 3 5 7 9 |
| 2.6 | 4150 | 4166 | 4183 | 4200 | 4216 | 4232 | 4249 | 4265 | 4281 | 4298 | 4314 | 2 3 5 7 8 |
| 2.7 | 4314 | 4330 | 4346 | 4362 | 4378 | 4393 | 4409 | 4425 | 4440 | 4456 | 4472 | 2 3 5 6 8 |
| 2.8 | 4472 | 4487 | 4502 | 4518 | 4533 | 4548 | 4564 | 4579 | 4594 | 4609 | 4624 | 2 3 5 6 8 |
| 2.9 | 4624 | 4639 | 4654 | 4669 | 4683 | 4698 | 4713 | 4728 | 4742 | 4757 | 4771 | 1 3 4 6 7 |
| **3.0** | 0.4771 | 4786 | 4800 | 4814 | 4829 | 4843 | 4857 | 4871 | 4886 | 4900 | 4914 | 1 3 4 6 7 |
| 3.1 | 4914 | 4928 | 4942 | 4955 | 4969 | 4983 | 4997 | 5011 | 5024 | 5038 | 5051 | 1 3 4 6 7 |
| 3.2 | 5051 | 5065 | 5079 | 5092 | 5105 | 5119 | 5132 | 5145 | 5159 | 5172 | 5185 | 1 3 4 5 7 |
| 3.3 | 5185 | 5198 | 5211 | 5224 | 5237 | 5250 | 5263 | 5276 | 5289 | 5302 | 5315 | 1 3 4 5 6 |
| 3.4 | 5315 | 5328 | 5340 | 5353 | 5366 | 5378 | 5391 | 5403 | 5416 | 5428 | 5441 | 1 3 4 5 6 |
| 3.5 | 5441 | 5453 | 5465 | 5478 | 5490 | 5502 | 5514 | 5527 | 5539 | 5551 | 5563 | 1 2 4 5 6 |
| 3.6 | 5563 | 5575 | 5587 | 5599 | 5611 | 5623 | 5635 | 5647 | 5658 | 5670 | 5682 | 1 2 4 5 6 |
| 3.7 | 5682 | 5694 | 5705 | 5717 | 5729 | 5740 | 5752 | 5763 | 5775 | 5786 | 5798 | 1 2 3 5 6 |
| 3.8 | 5798 | 5809 | 5821 | 5832 | 5843 | 5855 | 5866 | 5877 | 5888 | 5899 | 5911 | 1 2 3 5 6 |
| 3.9 | 5911 | 5922 | 5933 | 5944 | 5955 | 5966 | 5977 | 5988 | 5999 | 6010 | 6021 | 1 2 3 4 6 |
| **4.0** | 0.6021 | 6031 | 6042 | 6053 | 6064 | 6075 | 6085 | 6096 | 6107 | 6117 | 6128 | 1 2 3 4 5 |
| 4.1 | 6128 | 6138 | 6149 | 6160 | 6170 | 6180 | 6191 | 6201 | 6212 | 6222 | 6232 | 1 2 3 4 5 |
| 4.2 | 6232 | 6243 | 6253 | 6263 | 6274 | 6284 | 6294 | 6304 | 6314 | 6325 | 6335 | 1 2 3 4 5 |
| 4.3 | 6335 | 6345 | 6355 | 6365 | 6375 | 6385 | 6395 | 6405 | 6415 | 6425 | 6435 | 1 2 3 4 5 |
| 4.4 | 6435 | 6444 | 6454 | 6464 | 6474 | 6484 | 6493 | 6503 | 6513 | 6522 | 6532 | 1 2 3 4 5 |
| 4.5 | 6532 | 6542 | 6551 | 6561 | 6571 | 6580 | 6590 | 6599 | 6609 | 6618 | 6628 | 1 2 3 4 5 |
| 4.6 | 6628 | 6637 | 6646 | 6656 | 6665 | 6675 | 6684 | 6693 | 6702 | 6712 | 6721 | 1 2 3 4 5 |
| 4.7 | 6721 | 6730 | 6739 | 6749 | 6758 | 6767 | 6776 | 6785 | 6794 | 6803 | 6812 | 1 2 3 4 5 |
| 4.8 | 6812 | 6821 | 6830 | 6839 | 6848 | 6857 | 6866 | 6875 | 6884 | 6893 | 6902 | 1 2 3 4 4 |
| 4.9 | 6902 | 6911 | 6920 | 6928 | 6937 | 6946 | 6955 | 6964 | 6972 | 6981 | 6990 | 1 2 3 4 4 |

$\log \pi = 0.4971$ $\quad \log \pi/2 = 0.1961$ $\quad \log \pi^2 = 0.9943$ $\quad \log \sqrt{\pi} = 0.2486$

$\log e = 0.4343$ $\quad (16)$ $\quad \log (0.4343) = \bar{1}.6378$

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **5.0** | 0.6990 | 6998 | 7007 | 7016 | 7024 | 7033 | 7042 | 7050 | 7059 | 7067 | 7076 | 1 | 2 | 3 | 3 | 4 |
| 5.1 | 7076 | 7084 | 7093 | 7101 | 7110 | 7118 | 7126 | 7135 | 7143 | 7152 | 7160 | 1 | 2 | 3 | 3 | 4 |
| 5.2 | 7160 | 7168 | 7177 | 7185 | 7193 | 7202 | 7210 | 7218 | 7226 | 7235 | 7243 | 1 | 2 | 2 | 3 | 4 |
| 5.3 | 7243 | 7251 | 7259 | 7267 | 7275 | 7284 | 7292 | 7300 | 7308 | 7316 | 7324 | 1 | 2 | 2 | 3 | 4 |
| 5.4 | 7324 | 7332 | 7340 | 7348 | 7356 | 7364 | 7372 | 7380 | 7388 | 7396 | 7404 | 1 | 2 | 2 | 3 | 4 |
| 5.5 | 7404 | 7412 | 7419 | 7427 | 7435 | 7443 | 7451 | 7459 | 7466 | 7474 | 7482 | 1 | 2 | 2 | 3 | 4 |
| 5.6 | 7482 | 7490 | 7497 | 7505 | 7513 | 7520 | 7528 | 7536 | 7543 | 7551 | 7559 | 1 | 2 | 2 | 3 | 4 |
| 5.7 | 7559 | 7566 | 7574 | 7582 | 7589 | 7597 | 7604 | 7612 | 7619 | 7627 | 7634 | 1 | 2 | 2 | 3 | 4 |
| 5.8 | 7634 | 7642 | 7649 | 7657 | 7664 | 7672 | 7679 | 7686 | 7694 | 7701 | 7709 | 1 | 1 | 2 | 3 | 4 |
| 5.9 | 7709 | 7716 | 7723 | 7731 | 7738 | 7745 | 7752 | 7760 | 7767 | 7774 | 7782 | 1 | 1 | 2 | 3 | 4 |
| **6.0** | 0.7782 | 7789 | 7796 | 7803 | 7810 | 7818 | 7825 | 7832 | 7839 | 7846 | 7853 | 1 | 1 | 2 | 3 | 4 |
| 6.1 | 7853 | 7860 | 7868 | 7875 | 7882 | 7889 | 7896 | 7903 | 7910 | 7917 | 7924 | 1 | 1 | 2 | 3 | 4 |
| 6.2 | 7924 | 7931 | 7938 | 7945 | 7952 | 7959 | 7966 | 7973 | 7980 | 7987 | 7993 | 1 | 1 | 2 | 3 | 3 |
| 6.3 | 7993 | 8000 | 8007 | 8014 | 8021 | 8028 | 8035 | 8041 | 8048 | 8055 | 8062 | 1 | 1 | 2 | 3 | 3 |
| 6.4 | 8062 | 8069 | 8075 | 8082 | 8089 | 8096 | 8102 | 8109 | 8116 | 8122 | 8129 | 1 | 1 | 2 | 3 | 3 |
| 6.5 | 8129 | 8136 | 8142 | 8149 | 8156 | 8162 | 8169 | 8176 | 8182 | 8189 | 8195 | 1 | 1 | 2 | 3 | 3 |
| 6.6 | 8195 | 8202 | 8209 | 8215 | 8222 | 8228 | 8235 | 8241 | 8248 | 8254 | 8261 | 1 | 1 | 2 | 3 | 3 |
| 6.7 | 8261 | 8267 | 8274 | 8280 | 8287 | 8293 | 8299 | 8306 | 8312 | 8319 | 8325 | 1 | 1 | 2 | 3 | 3 |
| 6.8 | 8325 | 8331 | 8338 | 8344 | 8351 | 8357 | 8363 | 8370 | 8376 | 8382 | 8388 | 1 | 1 | 2 | 3 | 3 |
| 6.9 | 8388 | 8395 | 8401 | 8407 | 8414 | 8420 | 8426 | 8432 | 8439 | 8445 | 8451 | 1 | 1 | 2 | 3 | 3 |
| **7.0** | 0.8451 | 8457 | 8463 | 8470 | 8476 | 8482 | 8488 | 8494 | 8500 | 8506 | 8513 | 1 | 1 | 2 | 2 | 3 |
| 7.1 | 8513 | 8519 | 8525 | 8531 | 8537 | 8543 | 8549 | 8555 | 8561 | 8567 | 8573 | 1 | 1 | 2 | 2 | 3 |
| 7.2 | 8573 | 8579 | 8585 | 8591 | 8597 | 8603 | 8609 | 8615 | 8621 | 8627 | 8633 | 1 | 1 | 2 | 2 | 3 |
| 7.3 | 8633 | 8639 | 8645 | 8651 | 8657 | 8663 | 8669 | 8675 | 8681 | 8686 | 8692 | 1 | 1 | 2 | 2 | 3 |
| 7.4 | 8692 | 8698 | 8704 | 8710 | 8716 | 8722 | 8727 | 8733 | 8739 | 8745 | 8751 | 1 | 1 | 2 | 2 | 3 |
| 7.5 | 8751 | 8756 | 8762 | 8768 | 8774 | 8779 | 8785 | 8791 | 8797 | 8802 | 8808 | 1 | 1 | 2 | 2 | 3 |
| 7.6 | 8808 | 8814 | 8820 | 8825 | 8831 | 8837 | 8842 | 8848 | 8854 | 8859 | 8865 | 1 | 1 | 2 | 2 | 3 |
| 7.7 | 8865 | 8871 | 8876 | 8882 | 8887 | 8893 | 8899 | 8904 | 8910 | 8915 | 8921 | 1 | 1 | 2 | 2 | 3 |
| 7.8 | 8921 | 8927 | 8932 | 8938 | 8943 | 8949 | 8954 | 8960 | 8965 | 8971 | 8976 | 1 | 1 | 2 | 2 | 3 |
| 7.9 | 8976 | 8982 | 8987 | 8993 | 8998 | 9004 | 9009 | 9015 | 9020 | 9025 | 9031 | 1 | 1 | 2 | 2 | 3 |
| **8.0** | 0.9031 | 9036 | 9042 | 9047 | 9053 | 9058 | 9063 | 9069 | 9074 | 9079 | 9085 | 1 | 1 | 2 | 2 | 3 |
| 8.1 | 9085 | 9090 | 9096 | 9101 | 9106 | 9112 | 9117 | 9122 | 9128 | 9133 | 9138 | 1 | 1 | 2 | 2 | 3 |
| 8.2 | 9138 | 9143 | 9149 | 9154 | 9159 | 9165 | 9170 | 9175 | 9180 | 9186 | 9191 | 1 | 1 | 2 | 2 | 3 |
| 8.3 | 9191 | 9196 | 9201 | 9206 | 9212 | 9217 | 9222 | 9227 | 9232 | 9238 | 9243 | 1 | 1 | 2 | 2 | 3 |
| 8.4 | 9243 | 9248 | 9253 | 9258 | 9263 | 9269 | 9274 | 9279 | 9284 | 9289 | 9294 | 1 | 1 | 2 | 2 | 3 |
| 8.5 | 9294 | 9299 | 9304 | 9309 | 9315 | 9320 | 9325 | 9330 | 9335 | 9340 | 9345 | 1 | 1 | 2 | 2 | 3 |
| 8.6 | 9345 | 9350 | 9355 | 9360 | 9365 | 9370 | 9375 | 9380 | 9385 | 9390 | 9395 | 1 | 1 | 2 | 2 | 3 |
| 8.7 | 9395 | 9400 | 9405 | 9410 | 9415 | 9420 | 9425 | 9430 | 9435 | 9440 | 9445 | 0 | 1 | 1 | 2 | 2 |
| 8.8 | 9445 | 9450 | 9455 | 9460 | 9465 | 9469 | 9474 | 9479 | 9484 | 9489 | 9494 | 0 | 1 | 1 | 2 | 2 |
| 8.9 | 9494 | 9499 | 9504 | 9509 | 9513 | 9518 | 9523 | 9528 | 9533 | 9538 | 9542 | 0 | 1 | 1 | 2 | 2 |
| **9.0** | 0.9542 | 9547 | 9552 | 9557 | 9562 | 9566 | 9571 | 9576 | 9581 | 9586 | 9590 | 0 | 1 | 1 | 2 | 2 |
| 9.1 | 9590 | 9595 | 9600 | 9605 | 9609 | 9614 | 9619 | 9624 | 9628 | 9633 | 9638 | 0 | 1 | 1 | 2 | 2 |
| 9.2 | 9638 | 9643 | 9647 | 9652 | 9657 | 9661 | 9666 | 9671 | 9675 | 9680 | 9685 | 0 | 1 | 1 | 2 | 2 |
| 9.3 | 9685 | 9689 | 9694 | 9699 | 9703 | 9708 | 9713 | 9717 | 9722 | 9727 | 9731 | 0 | 1 | 1 | 2 | 2 |
| 9.4 | 9731 | 9736 | 9741 | 9745 | 9750 | 9754 | 9759 | 9763 | 9768 | 9773 | 9777 | 0 | 1 | 1 | 2 | 2 |
| 9.5 | 9777 | 9782 | 9786 | 9791 | 9795 | 9800 | 9805 | 9809 | 9814 | 9818 | 9823 | 0 | 1 | 1 | 2 | 2 |
| 9.6 | 9823 | 9827 | 9832 | 9836 | 9841 | 9845 | 9850 | 9854 | 9859 | 9863 | 9868 | 0 | 1 | 1 | 2 | 2 |
| 9.7 | 9868 | 9872 | 9877 | 9881 | 9886 | 9890 | 9894 | 9899 | 9903 | 9908 | 9912 | 0 | 1 | 1 | 2 | 2 |
| 9.8 | 9912 | 9917 | 9921 | 9926 | 9930 | 9934 | 9939 | 9943 | 9948 | 9952 | 9956 | 0 | 1 | 1 | 2 | 2 |
| 9.9 | 9956 | 9961 | 9965 | 9969 | 9974 | 9978 | 9983 | 9987 | 9991 | 9996 | | 0 | 1 | 1 | 2 | 2 |



7965

log sin & log cos | log tan & log ctn

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0°.0 | −∞ | $\bar{4}$.2419 | 5429 | 7190 | 8439 | 9408 | 0200 | 0870 | 1450 | 1961 | $\bar{3}$.2419 | 89.9 |
| 0.1 | $\bar{3}$.2419 | 2833 | 3211 | 3558 | 3880 | 4180 | 4460 | 4723 | 4971 | 5206 | 5429 | 89.8 |
| 0.2 | 5429 | 5641 | 5843 | 6036 | 6221 | 6398 | 6568 | 6732 | 6890 | 7043 | 7190 | 89.7 |
| 0.3 | 7190 | 7332 | 7470 | 7604 | 7734 | 7859 | 7982 | 8101 | 8217 | 8329 | 8439 | 89.6 |
| 0.4 | 8439 | 8547 | 8651 | 8753 | 8853 | 8951 | 9046 | 9140 | 9231 | 9321 | $\bar{3}$.9408 | 89.5 |
| 0.5 | $\bar{3}$.9408 | 9494 | 9579 | 9661 | 9743 | 9822 | 9901 | 9977 | 0053 | 0127 | $\bar{2}$.0200 | 89.4 |
| 0.6 | $\bar{2}$.0200 | 0272 | 0343 | 0412 | 0480 | 0548 | 0614 | 0679 | 0744 | 0807 | 0870 | 89.3 |
| 0.7 | 0870 | 0931 | 0992 | 1052 | 1111 | 1169 | 1227 | 1284 | 1340 | 1395 | 1450 | 89.2 |
| 0.8 | 1450 | 1503 | 1557 | 1609 | 1661 | 1713 | 1764 | 1814 | 1863 | 1912 | 1961 | 89.1 |
| 0.9 | 1961 | 2009 | 2056 | 2103 | 2150 | 2196 | 2241 | 2286 | 2331 | 2375 | $\bar{2}$.2419 | 89°.0 |
| 1°.0 | $\bar{2}$.2419 | 2462 | 2505 | 2547 | 2589 | 2630 | 2672 | 2712 | 2753 | 2793 | 2832 | 88.9 |
| 1.1 | 2832 | 2872 | 2911 | 2949 | 2988 | 3025 | 3063 | 3100 | 3137 | 3174 | 3210 | 88.8 |
| 1.2 | 3210 | 3246 | 3282 | 3317 | 3353 | 3388 | 3422 | 3456 | 3491 | 3524 | 3558 | 88.7 |
| 1.3 | 3558 | 3591 | 3624 | 3657 | 3689 | 3722 | 3754 | 3786 | 3817 | 3848 | 3880 | 88.6 |
| 1.4 | 3880 | 3911 | 3941 | 3972 | 4002 | 4032 | 4062 | 4091 | 4121 | 4150 | 4179 | 88.5 |
| 1.5 | 4179 | 4208 | 4237 | 4265 | 4293 | 4322 | 4349 | 4377 | 4405 | 4432 | 4459 | 88.4 |
| 1.6 | 4459 | 4486 | 4513 | 4540 | 4567 | 4593 | 4619 | 4645 | 4671 | 4697 | 4723 | 88.3 |
| 1.7 | 4723 | 4748 | 4773 | 4799 | 4824 | 4848 | 4873 | 4898 | 4922 | 4947 | 4971 | 88.2 |
| 1.8 | 4971 | 4995 | 5019 | 5043 | 5066 | 5090 | 5113 | 5136 | 5160 | 5183 | 5206 | 88.1 |
| 1.9 | 5206 | 5228 | 5251 | 5274 | 5296 | 5318 | 5340 | 5363 | 5385 | 5406 | $\bar{2}$.5428 | 88°.0 |
| 2°.0 | $\bar{2}$.5428 | 5450 | 5471 | 5493 | 5514 | 5535 | 5557 | 5578 | 5598 | 5619 | 5640 | 87.9 |
| 2.1 | 5640 | 5661 | 5681 | 5702 | 5722 | 5742 | 5762 | 5782 | 5802 | 5822 | 5842 | 87.8 |
| 2.2 | 5842 | 5862 | 5881 | 5901 | 5920 | 5939 | 5959 | 5978 | 5997 | 6016 | 6035 | 87.7 |
| 2.3 | 6035 | 6054 | 6072 | 6091 | 6110 | 6128 | 6147 | 6165 | 6183 | 6201 | 6220 | 87.6 |
| 2.4 | 6220 | 6238 | 6256 | 6274 | 6291 | 6309 | 6327 | 6344 | 6362 | 6379 | 6397 | 87.5 |
| 2.5 | 6397 | 6414 | 6431 | 6449 | 6466 | 6483 | 6500 | 6517 | 6534 | 6550 | 6567 | 87.4 |
| 2.6 | 6567 | 6584 | 6600 | 6617 | 6633 | 6650 | 6666 | 6682 | 6699 | 6715 | 6731 | 87.3 |
| 2.7 | 6731 | 6747 | 6763 | 6779 | 6795 | 6810 | 6826 | 6842 | 6858 | 6873 | 6889 | 87.2 |
| 2.8 | 6889 | 6904 | 6920 | 6935 | 6950 | 6965 | 6981 | 6996 | 7011 | 7026 | 7041 | 87.1 |
| 2.9 | 7041 | 7056 | 7071 | 7086 | 7100 | 7115 | 7130 | 7144 | 7159 | 7174 | $\bar{2}$.7188 | 87°.0 |
| 3°.0 | $\bar{2}$.7188 | 7202 | 7217 | 7231 | 7245 | 7260 | 7274 | 7288 | 7302 | 7316 | 7330 | 86.9 |
| 3.1 | 7330 | 7344 | 7358 | 7372 | 7386 | 7400 | 7413 | 7427 | 7441 | 7454 | 7468 | 86.8 |
| 3.2 | 7468 | 7482 | 7495 | 7508 | 7522 | 7535 | 7549 | 7562 | 7575 | 7588 | 7602 | 86.7 |
| 3.3 | 7602 | 7615 | 7628 | 7641 | 7654 | 7667 | 7680 | 7693 | 7705 | 7718 | 7731 | 86.6 |
| 3.4 | 7731 | 7744 | 7756 | 7769 | 7782 | 7794 | 7807 | 7819 | 7832 | 7844 | 7857 | 86.5 |
| 3.5 | 7857 | 7869 | 7881 | 7894 | 7906 | 7918 | 7930 | 7943 | 7955 | 7967 | 7979 | 86.4 |
| 3.6 | 7979 | 7991 | 8003 | 8015 | 8027 | 8039 | 8051 | 8062 | 8074 | 8086 | 8098 | 86.3 |
| 3.7 | 8098 | 8109 | 8121 | 8133 | 8144 | 8156 | 8168 | 8179 | 8191 | 8202 | 8213 | 86.2 |
| 3.8 | 8213 | 8225 | 8236 | 8248 | 8259 | 8270 | 8281 | 8293 | 8304 | 8315 | 8326 | 86.1 |
| 3.9 | 8326 | 8337 | 8348 | 8359 | 8370 | 8381 | 8392 | 8403 | 8414 | 8425 | $\bar{2}$.8436 | 86°.0 |
| 4°.0 | $\bar{2}$.8436 | 8447 | 8457 | 8468 | 8479 | 8490 | 8500 | 8511 | 8522 | 8532 | 8543 | 85.9 |
| 4.1 | 8543 | 8553 | 8564 | 8575 | 8585 | 8595 | 8606 | 8616 | 8627 | 8637 | 8647 | 85.8 |
| 4.2 | 8647 | 8658 | 8668 | 8678 | 8688 | 8699 | 8709 | 8719 | 8729 | 8739 | 8749 | 85.7 |
| 4.3 | 8749 | 8759 | 8769 | 8780 | 8790 | 8799 | 8809 | 8819 | 8829 | 8839 | 8849 | 85.6 |
| 4.4 | 8849 | 8859 | 8869 | 8878 | 8888 | 8898 | 8908 | 8917 | 8927 | 8937 | 8946 | 85.5 |
| 4.5 | 8946 | 8956 | 8966 | 8975 | 8985 | 8994 | 9004 | 9013 | 9023 | 9032 | 9042 | 85.4 |
| 4.6 | 9042 | 9051 | 9060 | 9070 | 9079 | 9089 | 9098 | 9107 | 9116 | 9126 | 9135 | 85.3 |
| 4.7 | 9135 | 9144 | 9153 | 9162 | 9172 | 9181 | 9190 | 9199 | 9208 | 9217 | 9226 | 85.2 |
| 4.8 | 9226 | 9235 | 9244 | 9253 | 9262 | 9271 | 9280 | 9289 | 9298 | 9307 | 9315 | 85.1 |
| 4.9 | 9315 | 9324 | 9333 | 9342 | 9351 | 9359 | 9368 | 9377 | 9386 | 9394 | $\bar{2}$.9403 | 85°.0 |

Tenths of the Tabular Difference

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 4 | 8 | 11 | 15 | 19 |
| 3 | 7 | 10 | 14 | 17 |
| 3 | 6 | 10 | 13 | 16 |
| 3 | 6 | 9 | 12 | 15 |
| 3 | 6 | 8 | 11 | 14 |
| 3 | 5 | 8 | 11 | 13 |
| 2 | 5 | 7 | 10 | 12 |
| 2 | 5 | 7 | 9 | 12 |
| 2 | 4 | 7 | 9 | 11 |
| 2 | 4 | 6 | 8 | 11 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 6 | 7 | 9 |
| 2 | 4 | 5 | 7 | 9 |
| 2 | 3 | 5 | 7 | 9 |
| 2 | 3 | 5 | 7 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 1 | 3 | 4 | 6 | 7 |
| 1 | 3 | 4 | 6 | 7 |
| 1 | 3 | 4 | 6 | 7 |
| 1 | 3 | 4 | 5 | 7 |
| 1 | 3 | 4 | 5 | 6 |
| 1 | 3 | 4 | 5 | 6 |
| 1 | 2 | 4 | 5 | 6 |
| 1 | 2 | 4 | 5 | 6 |
| 1 | 2 | 3 | 5 | 6 |
| 1 | 2 | 3 | 5 | 6 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 4 |
| 1 | 2 | 3 | 4 | 4 |

To avoid interpolation in the first eleven lines, use note.*

(Ordinary interpolation would not be accurate in the first three lines.)

* When $x$ is between 0° and 1°.1 log sin $x$ = log rad $x$

[See page 28]



* When $x$ is between 88°.9 and 90° log cos $x$ = log rad (90°−$x$)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | Tenths of the Tabular Difference 1 2 3 4 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5°.0 | $\bar{2}$.9403 | 9412 | 9420 | 9429 | 9437 | 9446 | 9455 | 9463 | 9472 | 9480 | $\bar{2}$.9489 | 84.9 | 1 2 3 3 4 |
| 5.1 | 9489 | 9497 | 9506 | 9514 | 9523 | 9531 | 9539 | 9548 | 9556 | 9565 | 9573 | 84.8 | 1 2 3 3 4 |
| 5.2 | 9573 | 9581 | 9589 | 9598 | 9606 | 9614 | 9623 | 9631 | 9639 | 9647 | 9655 | 84.7 | 1 2 2 3 4 |
| 5.3 | 9655 | 9664 | 9672 | 9680 | 9688 | 9696 | 9704 | 9712 | 9720 | 9728 | 9736 | 84.6 | 1 2 2 3 4 |
| 5.4 | 9736 | 9744 | 9752 | 9760 | 9768 | 9776 | 9784 | 9792 | 9800 | 9808 | 9816 | 84.5 | 1 2 2 3 4 |
| 5.5 | 9816 | 9824 | 9831 | 9839 | 9847 | 9855 | 9863 | 9870 | 9878 | 9886 | 9894 | 84.4 | 1 2 2 3 4 |
| 5.6 | 9894 | 9901 | 9909 | 9917 | 9925 | 9932 | 9940 | 9948 | 9955 | 9963 | $\bar{2}$.9970 | 84.3 | 1 2 2 3 4 |
| 5.7 | $\bar{2}$.9970 | 9978 | 9986 | 9993 | 0001 | 0008 | 0016 | 0023 | 0031 | 0038 | $\bar{1}$.0046 | 84.2 | 1 2 2 3 4 |
| 5.8 | $\bar{1}$.0046 | 0053 | 0061 | 0068 | 0075 | 0083 | 0090 | 0098 | 0105 | 0112 | 0120 | 84.1 | 1 1 2 3 4 |
| 5.9 | 0120 | 0127 | 0134 | 0142 | 0149 | 0156 | 0163 | 0171 | 0178 | 0185 | $\bar{1}$.0192 | 84°.0 | 1 1 2 3 4 |
| 6°.0 | $\bar{1}$.0192 | 0200 | 0207 | 0214 | 0221 | 0228 | 0235 | 0243 | 0250 | 0257 | 0264 | 83.9 | 1 1 2 3 4 |
| 6.1 | 0264 | 0271 | 0278 | 0285 | 0292 | 0299 | 0306 | 0313 | 0320 | 0327 | 0334 | 83.8 | 1 1 2 3 4 |
| 6.2 | 0334 | 0341 | 0348 | 0355 | 0362 | 0369 | 0376 | 0383 | 0390 | 0397 | 0403 | 83.7 | 1 1 2 3 3 |
| 6.3 | 0403 | 0410 | 0417 | 0424 | 0431 | 0438 | 0444 | 0451 | 0458 | 0465 | 0472 | 83.6 | 1 1 2 3 3 |
| 6.4 | 0472 | 0478 | 0485 | 0492 | 0498 | 0505 | 0512 | 0519 | 0525 | 0532 | 0539 | 83.5 | 1 1 2 3 3 |
| 6.5 | 0539 | 0545 | 0552 | 0558 | 0565 | 0572 | 0578 | 0585 | 0591 | 0598 | 0605 | 83.4 | 1 1 2 3 3 |
| 6.6 | 0605 | 0611 | 0618 | 0624 | 0631 | 0637 | 0644 | 0650 | 0657 | 0663 | 0670 | 83.3 | 1 1 2 3 3 |
| 6.7 | 0670 | 0676 | 0683 | 0689 | 0695 | 0702 | 0708 | 0715 | 0721 | 0727 | 0734 | 83.2 | 1 1 2 3 3 |
| 6.8 | 0734 | 0740 | 0746 | 0753 | 0759 | 0765 | 0772 | 0778 | 0784 | 0790 | 0797 | 83.1 | 1 1 2 3 3 |
| 6.9 | 0797 | 0803 | 0809 | 0816 | 0822 | 0828 | 0834 | 0840 | 0847 | 0853 | $\bar{1}$.0859 | 83°.0 | 1 1 2 2 3 |
| 7°.0 | $\bar{1}$.0859 | 0865 | 0871 | 0877 | 0884 | 0890 | 0896 | 0902 | 0908 | 0914 | 0920 | 82.9 | 1 1 2 2 3 |
| 7.1 | 0920 | 0926 | 0932 | 0938 | 0945 | 0951 | 0957 | 0963 | 0969 | 0975 | 0981 | 82.8 | 1 1 2 2 3 |
| 7.2 | 0981 | 0987 | 0993 | 0999 | 1005 | 1011 | 1017 | 1022 | 1028 | 1034 | 1040 | 82.7 | 1 1 2 2 3 |
| 7.3 | 1040 | 1046 | 1052 | 1058 | 1064 | 1070 | 1076 | 1081 | 1087 | 1093 | 1099 | 82.6 | 1 1 2 2 3 |
| 7.4 | 1099 | 1105 | 1111 | 1116 | 1122 | 1128 | 1134 | 1140 | 1145 | 1151 | 1157 | 82.5 | 1 1 2 2 3 |
| 7.5 | 1157 | 1163 | 1168 | 1174 | 1180 | 1186 | 1191 | 1197 | 1203 | 1208 | 1214 | 82.4 | 1 1 2 2 3 |
| 7.6 | 1214 | 1220 | 1226 | 1231 | 1237 | 1242 | 1248 | 1254 | 1259 | 1265 | 1271 | 82.3 | 1 1 2 2 3 |
| 7.7 | 1271 | 1276 | 1282 | 1287 | 1293 | 1299 | 1304 | 1310 | 1315 | 1321 | 1326 | 82.2 | 1 1 2 2 3 |
| 7.8 | 1326 | 1332 | 1337 | 1343 | 1348 | 1354 | 1359 | 1365 | 1370 | 1376 | 1381 | 82.1 | 1 1 2 2 3 |
| 7.9 | 1381 | 1387 | 1392 | 1398 | 1403 | 1409 | 1414 | 1419 | 1425 | 1430 | $\bar{1}$.1436 | 82°.0 | 1 1 2 2 3 |
| 8°.0 | $\bar{1}$.1436 | 1441 | 1446 | 1452 | 1457 | 1462 | 1468 | 1473 | 1478 | 1484 | 1489 | 81.9 | 1 1 2 2 3 |
| 8.1 | 1489 | 1494 | 1500 | 1505 | 1510 | 1516 | 1521 | 1526 | 1532 | 1537 | 1542 | 81.8 | 1 1 2 2 3 |
| 8.2 | 1542 | 1547 | 1553 | 1558 | 1563 | 1568 | 1574 | 1579 | 1584 | 1589 | 1594 | 81.7 | 1 1 2 2 3 |
| 8.3 | 1594 | 1600 | 1605 | 1610 | 1615 | 1620 | 1625 | 1631 | 1636 | 1641 | 1646 | 81.6 | 1 1 2 2 3 |
| 8.4 | 1646 | 1651 | 1656 | 1661 | 1666 | 1672 | 1677 | 1682 | 1687 | 1692 | 1697 | 81.5 | 1 1 2 2 3 |
| 8.5 | 1697 | 1702 | 1707 | 1712 | 1717 | 1722 | 1727 | 1732 | 1737 | 1742 | 1747 | 81.4 | 1 1 2 2 3 |
| 8.6 | 1747 | 1752 | 1757 | 1762 | 1767 | 1772 | 1777 | 1782 | 1787 | 1792 | 1797 | 81.3 | 0 1 1 2 2 |
| 8.7 | 1797 | 1802 | 1807 | 1812 | 1817 | 1822 | 1827 | 1832 | 1837 | 1842 | 1847 | 81.2 | 0 1 1 2 2 |
| 8.8 | 1847 | 1851 | 1856 | 1861 | 1866 | 1871 | 1876 | 1881 | 1886 | 1890 | 1895 | 81.1 | 0 1 1 2 2 |
| 8.9 | 1895 | 1900 | 1905 | 1910 | 1915 | 1919 | 1924 | 1929 | 1934 | 1939 | $\bar{1}$.1943 | 81°.0 | 0 1 1 2 2 |
| 9°.0 | $\bar{1}$.1943 | 1948 | 1953 | 1958 | 1962 | 1967 | 1972 | 1977 | 1981 | 1986 | 1991 | 80.9 | 0 1 1 2 2 |
| 9.1 | 1991 | 1996 | 2000 | 2005 | 2010 | 2015 | 2019 | 2024 | 2029 | 2033 | 2038 | 80.8 | 0 1 1 2 2 |
| 9.2 | 2038 | 2043 | 2047 | 2052 | 2057 | 2061 | 2066 | 2071 | 2075 | 2080 | 2085 | 80.7 | 0 1 1 2 2 |
| 9.3 | 2085 | 2089 | 2094 | 2098 | 2103 | 2108 | 2112 | 2117 | 2121 | 2126 | 2131 | 80.6 | 0 1 1 2 2 |
| 9.4 | 2131 | 2135 | 2140 | 2144 | 2149 | 2153 | 2158 | 2162 | 2167 | 2172 | 2176 | 80.5 | 0 1 1 2 2 |
| 9.5 | 2176 | 2181 | 2185 | 2190 | 2194 | 2199 | 2203 | 2208 | 2212 | 2217 | 2221 | 80.4 | 0 1 1 2 2 |
| 9.6 | 2221 | 2226 | 2230 | 2235 | 2239 | 2243 | 2248 | 2252 | 2257 | 2261 | 2266 | 80.3 | 0 1 1 2 2 |
| 9.7 | 2266 | 2270 | 2275 | 2279 | 2283 | 2288 | 2292 | 2297 | 2301 | 2305 | 2310 | 80.2 | 0 1 1 2 2 |
| 9.8 | 2310 | 2314 | 2319 | 2323 | 2327 | 2332 | 2336 | 2340 | 2345 | 2349 | 2353 | 80.1 | 0 1 1 2 2 |
| 9.9 | 2353 | 2358 | 2362 | 2367 | 2371 | 2375 | 2379 | 2384 | 2388 | 2392 | $\bar{1}$.2397 | 80°.0 | 0 1 1 2 2 |



log sin & log cos log tan & log ctn

| | Log Sin | | | | | | | | | | Log Cos | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | .0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | | |
| | | .9 | .8 | .7 | .6 | .5 | .4 | .3 | .2 | .1 | .0 | |
| | | | | | | | | | | | $-\infty$ | 90° |
| 0° | $-\infty$ | $\bar{3}$.2419 | 5429 | 7190 | 8439 | 9408 | 0200 | 0870 | 1450 | 1961 | $\bar{2}$.2419 | 89 |
| 1 | $\bar{2}$.2419 | 2832 | 3210 | 3558 | 3880 | 4179 | 4459 | 4723 | 4971 | 5206 | 5428 | 88 |
| 2 | 5428 | 5640 | 5842 | 6035 | 6220 | 6397 | 6567 | 6731 | 6889 | 7041 | 7188 | 87 |
| 3 | 7188 | 7330 | 7468 | 7602 | 7731 | 7857 | 7979 | 8098 | 8213 | 8326 | 8436 | 86 |
| 4 | 8436 | 8543 | 8647 | 8749 | 8849 | 8946 | 9042 | 9135 | 9226 | 9315 | $\bar{2}$.9403 | 85 |
| 5 | $\bar{2}$.9403 | 9489 | 9573 | 9655 | 9736 | 9816 | 9894 | 9970 | 0046 | 0120 | $\bar{1}$.0192 | 84 |
| 6 | $\bar{1}$.0192 | 0264 | 0334 | 0403 | 0472 | 0539 | 0605 | 0670 | 0734 | 0797 | 0859 | 83 |
| 7 | 0859 | 0920 | 0981 | 1040 | 1099 | 1157 | 1214 | 1271 | 1326 | 1381 | 1436 | 82 |
| 8 | 1436 | 1489 | 1542 | 1594 | 1646 | 1697 | 1747 | 1797 | 1847 | 1895 | 1943 | 81 |
| 9 | 1943 | 1991 | 2038 | 2085 | 2131 | 2176 | 2221 | 2266 | 2310 | 2353 | $\bar{1}$.2397 | 80° |
| 10° | $\bar{1}$.2397 | 2439 | 2482 | 2524 | 2565 | 2606 | 2647 | 2687 | 2727 | 2767 | 2806 | 79 |
| 11 | 2806 | 2845 | 2883 | 2921 | 2959 | 2997 | 3034 | 3070 | 3107 | 3143 | 3179 | 78 |
| 12 | 3179 | 3214 | 3250 | 3284 | 3319 | 3353 | 3387 | 3421 | 3455 | 3488 | 3521 | 77 |
| 13 | 3521 | 3554 | 3586 | 3618 | 3650 | 3682 | 3713 | 3745 | 3775 | 3806 | 3837 | 76 |
| 14 | 3837 | 3867 | 3897 | 3927 | 3957 | 3986 | 4015 | 4044 | 4073 | 4102 | 4130 | 75 |
| 15 | 4130 | 4158 | 4186 | 4214 | 4242 | 4269 | 4296 | 4323 | 4350 | 4377 | 4403 | 74 |
| 16 | 4403 | 4430 | 4456 | 4482 | 4508 | 4533 | 4559 | 4584 | 4609 | 4634 | 4659 | 73 |
| 17 | 4659 | 4684 | 4709 | 4733 | 4757 | 4781 | 4805 | 4829 | 4853 | 4876 | 4900 | 72 |
| 18 | 4900 | 4923 | 4946 | 4969 | 4992 | 5015 | 5037 | 5060 | 5082 | 5104 | 5126 | 71 |
| 19 | 5126 | 5148 | 5170 | 5192 | 5213 | 5235 | 5256 | 5278 | 5299 | 5320 | $\bar{1}$.5341 | 70° |
| 20° | $\bar{1}$.5341 | 5361 | 5382 | 5402 | 5423 | 5443 | 5463 | 5484 | 5504 | 5523 | 5543 | 69 |
| 21 | 5543 | 5563 | 5583 | 5602 | 5621 | 5641 | 5660 | 5679 | 5698 | 5717 | 5736 | 68 |
| 22 | 5736 | 5754 | 5773 | 5792 | 5810 | 5828 | 5847 | 5865 | 5883 | 5901 | 5919 | 67 |
| 23 | 5919 | 5937 | 5954 | 5972 | 5990 | 6007 | 6024 | 6042 | 6059 | 6076 | 6093 | 66 |
| 24 | 6093 | 6110 | 6127 | 6144 | 6161 | 6177 | 6194 | 6210 | 6227 | 6243 | 6259 | 65 |
| 25 | 6259 | 6276 | 6292 | 6308 | 6324 | 6340 | 6356 | 6371 | 6387 | 6403 | 6418 | 64 |
| 26 | 6418 | 6434 | 6449 | 6465 | 6480 | 6495 | 6510 | 6526 | 6541 | 6556 | 6570 | 63 |
| 27 | 6570 | 6585 | 6600 | 6615 | 6629 | 6644 | 6659 | 6673 | 6687 | 6702 | 6716 | 62 |
| 28 | 6716 | 6730 | 6744 | 6759 | 6773 | 6787 | 6801 | 6814 | 6828 | 6842 | 6856 | 61 |
| 29 | 6856 | 6869 | 6883 | 6896 | 6910 | 6923 | 6937 | 6950 | 6963 | 6977 | $\bar{1}$.6990 | 60° |
| 30° | $\bar{1}$.6990 | 7003 | 7016 | 7029 | 7042 | 7055 | 7068 | 7080 | 7093 | 7106 | 7118 | 59 |
| 31 | 7118 | 7131 | 7144 | 7156 | 7168 | 7181 | 7193 | 7205 | 7218 | 7230 | 7242 | 58 |
| 32 | 7242 | 7254 | 7266 | 7278 | 7290 | 7302 | 7314 | 7326 | 7338 | 7349 | 7361 | 57 |
| 33 | 7361 | 7373 | 7384 | 7396 | 7407 | 7419 | 7430 | 7442 | 7453 | 7464 | 7476 | 56 |
| 34 | 7476 | 7487 | 7498 | 7509 | 7520 | 7531 | 7542 | 7553 | 7564 | 7575 | 7586 | 55 |
| 35 | 7586 | 7597 | 7607 | 7618 | 7629 | 7640 | 7650 | 7661 | 7671 | 7682 | 7692 | 54 |
| 36 | 7692 | 7703 | 7713 | 7723 | 7734 | 7744 | 7754 | 7764 | 7774 | 7785 | 7795 | 53 |
| 37 | 7795 | 7805 | 7815 | 7825 | 7835 | 7844 | 7854 | 7864 | 7874 | 7884 | 7893 | 52 |
| 38 | 7893 | 7903 | 7913 | 7922 | 7932 | 7941 | 7951 | 7960 | 7970 | 7979 | 7989 | 51 |
| 39 | 7989 | 7998 | 8007 | 8017 | 8026 | 8035 | 8044 | 8053 | 8063 | 8072 | $\bar{1}$.8081 | 50° |
| 40° | $\bar{1}$.8081 | 8090 | 8099 | 8108 | 8117 | 8125 | 8134 | 8143 | 8152 | 8161 | 8169 | 49 |
| 41 | 8169 | 8178 | 8187 | 8195 | 8204 | 8213 | 8221 | 8230 | 8238 | 8247 | 8255 | 48 |
| 42 | 8255 | 8264 | 8272 | 8280 | 8289 | 8297 | 8305 | 8313 | 8322 | 8330 | 8338 | 47 |
| 43 | 8338 | 8346 | 8354 | 8362 | 8370 | 8378 | 8386 | 8394 | 8402 | 8410 | 8418 | 46 |
| 44 | 8418 | 8426 | 8433 | 8441 | 8449 | 8457 | 8464 | 8472 | 8480 | 8487 | $\bar{1}$.8495 | 45° |
| 45° | $\bar{1}$.8495 | | | | | | | | | | | |

**Tenths of the Tabular Difference**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 4 | 8 | 12 | 16 | 20 |
| 4 | 7 | 11 | 15 | 19 |
| 3 | 7 | 10 | 14 | 17 |
| 3 | 6 | 9 | 13 | 16 |
| 3 | 6 | 9 | 12 | 15 |
| 3 | 5 | 8 | 11 | 14 |
| 3 | 5 | 8 | 10 | 13 |
| 2 | 5 | 7 | 10 | 12 |
| 2 | 5 | 7 | 9 | 11 |
| 2 | 4 | 6 | 9 | 11 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 5 | 7 | 9 |
| 2 | 3 | 5 | 7 | 9 |
| 2 | 3 | 5 | 7 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 1 | 3 | 4 | 6 | 7 |
| 1 | 3 | 4 | 6 | 7 |
| 1 | 3 | 4 | 5 | 7 |
| 1 | 3 | 4 | 5 | 6 |
| 1 | 2 | 4 | 5 | 6 |
| 1 | 2 | 4 | 5 | 6 |
| 1 | 2 | 3 | 5 | 6 |
| 1 | 2 | 3 | 4 | 6 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 4 |
| 1 | 2 | 3 | 3 | 4 |
| 1 | 2 | 2 | 3 | 4 |
| 1 | 2 | 2 | 3 | 4 |
| 1 | 2 | 2 | 3 | 4 |

To avoid interpolation in the first ten lines, use the special table on the preceding page. (Ordinary interpolation would not be accurate in the first three lines.)

| Log Sin | .0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | Log Cos | | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | $\bar{1}$.8495 | 45° | | | | | |
| 45° | $\bar{1}$.8495 | 8502 | 8510 | 8517 | 8525 | 8532 | 8540 | 8547 | 8555 | 8562 | 8569 | 44 | 1 | 1 | 2 | 3 | 4 |
| 46 | 8569 | 8577 | 8584 | 8591 | 8598 | 8606 | 8613 | 8620 | 8627 | 8634 | 8641 | 43 | 1 | 1 | 2 | 3 | 4 |
| 47 | 8641 | 8648 | 8655 | 8662 | 8669 | 8676 | 8683 | 8690 | 8697 | 8704 | 8711 | 42 | 1 | 1 | 2 | 3 | 3 |
| 48 | 8711 | 8718 | 8724 | 8731 | 8738 | 8745 | 8751 | 8758 | 8765 | 8771 | 8778 | 41 | 1 | 1 | 2 | 3 | 3 |
| 49 | 8778 | 8784 | 8791 | 8797 | 8804 | 8810 | 8817 | 8823 | 8830 | 8836 | $\bar{1}$.8843 | 40° | 1 | 1 | 2 | 3 | 3 |
| 50° | $\bar{1}$.8843 | 8849 | 8855 | 8862 | 8868 | 8874 | 8880 | 8887 | 8893 | 8899 | 8905 | 39 | 1 | 1 | 2 | 2 | 3 |
| 51 | 8905 | 8911 | 8917 | 8923 | 8929 | 8935 | 8941 | 8947 | 8953 | 8959 | 8965 | 38 | 1 | 1 | 2 | 2 | 3 |
| 52 | 8965 | 8971 | 8977 | 8983 | 8989 | 8995 | 9000 | 9006 | 9012 | 9018 | 9023 | 37 | 1 | 1 | 2 | 2 | 3 |
| 53 | 9023 | 9029 | 9035 | 9041 | 9046 | 9052 | 9057 | 9063 | 9069 | 9074 | 9080 | 36 | 1 | 1 | 2 | 2 | 3 |
| 54 | 9080 | 9085 | 9091 | 9096 | 9101 | 9107 | 9112 | 9118 | 9123 | 9128 | 9134 | 35 | 1 | 1 | 2 | 2 | 3 |
| 55 | 9134 | 9139 | 9144 | 9149 | 9155 | 9160 | 9165 | 9170 | 9175 | 9181 | 9186 | 34 | 1 | 1 | 2 | 2 | 3 |
| 56 | 9186 | 9191 | 9196 | 9201 | 9206 | 9211 | 9216 | 9221 | 9226 | 9231 | 9236 | 33 | 1 | 1 | 2 | 2 | 3 |
| 57 | 9236 | 9241 | 9246 | 9251 | 9255 | 9260 | 9265 | 9270 | 9275 | 9279 | 9284 | 32 | 0 | 1 | 1 | 2 | 2 |
| 58 | 9284 | 9289 | 9294 | 9298 | 9303 | 9308 | 9312 | 9317 | 9322 | 9326 | 9331 | 31 | 0 | 1 | 1 | 2 | 2 |
| 59 | 9331 | 9335 | 9340 | 9344 | 9349 | 9353 | 9358 | 9362 | 9367 | 9371 | $\bar{1}$.9375 | 30° | 0 | 1 | 1 | 2 | 2 |
| 60° | $\bar{1}$.9375 | 9380 | 9384 | 9388 | 9393 | 9397 | 9401 | 9406 | 9410 | 9414 | 9418 | 29 | 0 | 1 | 1 | 2 | 2 |
| 61 | 9418 | 9422 | 9427 | 9431 | 9435 | 9439 | 9443 | 9447 | 9451 | 9455 | 9459 | 28 | 0 | 1 | 1 | 2 | 2 |
| 62 | 9459 | 9463 | 9467 | 9471 | 9475 | 9479 | 9483 | 9487 | 9491 | 9495 | 9499 | 27 | 0 | 1 | 1 | 2 | 2 |
| 63 | 9499 | 9503 | 9506 | 9510 | 9514 | 9518 | 9522 | 9525 | 9529 | 9533 | 9537 | 26 | 0 | 1 | 1 | 2 | 2 |
| 64 | 9537 | 9540 | 9544 | 9548 | 9551 | 9555 | 9558 | 9562 | 9566 | 9569 | 9573 | 25 | 0 | 1 | 1 | 1 | 2 |
| 65 | 9573 | 9576 | 9580 | 9583 | 9587 | 9590 | 9594 | 9597 | 9601 | 9604 | 9607 | 24 | 0 | 1 | 1 | 1 | 2 |
| 66 | 9607 | 9611 | 9614 | 9617 | 9621 | 9624 | 9627 | 9631 | 9634 | 9637 | 9640 | 23 | 0 | 1 | 1 | 1 | 2 |
| 67 | 9640 | 9643 | 9647 | 9650 | 9653 | 9656 | 9659 | 9662 | 9666 | 9669 | 9672 | 22 | 0 | 1 | 1 | 1 | 2 |
| 68 | 9672 | 9675 | 9678 | 9681 | 9684 | 9687 | 9690 | 9693 | 9696 | 9699 | 9702 | 21 | 0 | 1 | 1 | 1 | 1 |
| 69 | 9702 | 9704 | 9707 | 9710 | 9713 | 9716 | 9719 | 9722 | 9724 | 9727 | $\bar{1}$.9730 | 20° | 0 | 1 | 1 | 1 | 1 |
| 70° | $\bar{1}$.9730 | 9733 | 9735 | 9738 | 9741 | 9743 | 9746 | 9749 | 9751 | 9754 | 9757 | 19 | 0 | 1 | 1 | 1 | 1 |
| 71 | 9757 | 9759 | 9762 | 9764 | 9767 | 9770 | 9772 | 9775 | 9777 | 9780 | 9782 | 18 | 0 | 1 | 1 | 1 | 1 |
| 72 | 9782 | 9785 | 9787 | 9789 | 9792 | 9794 | 9797 | 9799 | 9801 | 9804 | 9806 | 17 | 0 | 0 | 1 | 1 | 1 |
| 73 | 9806 | 9808 | 9811 | 9813 | 9815 | 9817 | 9820 | 9822 | 9824 | 9826 | 9828 | 16 | 0 | 0 | 1 | 1 | 1 |
| 74 | 9828 | 9831 | 9833 | 9835 | 9837 | 9839 | 9841 | 9843 | 9845 | 9847 | 9849 | 15 | 0 | 0 | 1 | 1 | 1 |
| 75 | 9849 | 9851 | 9853 | 9855 | 9857 | 9859 | 9861 | 9863 | 9865 | 9867 | 9869 | 14 | 0 | 0 | 1 | 1 | 1 |
| 76 | 9869 | 9871 | 9873 | 9875 | 9876 | 9878 | 9880 | 9882 | 9884 | 9885 | 9887 | 13 | 0 | 0 | 1 | 1 | 1 |
| 77 | 9887 | 9889 | 9891 | 9892 | 9894 | 9896 | 9897 | 9899 | 9901 | 9902 | 9904 | 12 | 0 | 0 | 1 | 1 | 1 |
| 78 | 9904 | 9906 | 9907 | 9909 | 9910 | 9912 | 9913 | 9915 | 9916 | 9918 | 9919 | 11 | 0 | 0 | 0 | 1 | 1 |
| 79 | 9919 | 9921 | 9922 | 9924 | 9925 | 9927 | 9928 | 9929 | 9931 | 9932 | $\bar{1}$.9934 | 10° | 0 | 0 | 0 | 1 | 1 |
| 80° | $\bar{1}$.9934 | 9935 | 9936 | 9937 | 9939 | 9940 | 9941 | 9943 | 9944 | 9945 | 9946 | 9 | 0 | 0 | 0 | 1 | 1 |
| 81 | 9946 | 9947 | 9949 | 9950 | 9951 | 9952 | 9953 | 9954 | 9955 | 9956 | 9958 | 8 | 0 | 0 | 0 | 0 | 1 |
| 82 | 9958 | 9959 | 9960 | 9961 | 9962 | 9963 | 9964 | 9965 | 9966 | 9967 | 9968 | 7 | 0 | 0 | 0 | 0 | 0 |
| 83 | 9968 | 9968 | 9969 | 9970 | 9971 | 9972 | 9973 | 9974 | 9975 | 9975 | 9976 | 6 | 0 | 0 | 0 | 0 | 0 |
| 84 | 9976 | 9977 | 9978 | 9978 | 9979 | 9980 | 9981 | 9981 | 9982 | 9983 | 9983 | 5 | 0 | 0 | 0 | 0 | 0 |
| 85 | 9983 | 9984 | 9985 | 9985 | 9986 | 9987 | 9987 | 9988 | 9988 | 9989 | 9989 | 4 | 0 | 0 | 0 | 0 | 0 |
| 86 | 9989 | 9990 | 9990 | 9991 | 9991 | 9992 | 9992 | 9993 | 9993 | 9994 | 9994 | 3 | 0 | 0 | 0 | 0 | 0 |
| 87 | 9994 | 9994 | 9995 | 9995 | 9996 | 9996 | 9996 | 9996 | 9997 | 9997 | 9997 | 2 | 0 | 0 | 0 | 0 | 0 |
| 88 | 9997 | 9998 | 9998 | 9998 | 9998 | 9999 | 9999 | 9999 | 9999 | 9999 | $\bar{1}$.9999 | 1 | 0 | 0 | 0 | 0 | 0 |
| 89 | $\bar{1}$.9999 | 9999 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0.0000 | 0° | 0 | 0 | 0 | 0 | 0 |
| 90° | 0.0000 | | | | | | | | | | | | | | | | |

## Log Tan — Log Cotan

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0°.0 | $-\infty$ | $\bar{4}$.2419 | 5429 | 7190 | 8439 | 9408 | 0200 | 0870 | 1450 | 1961 | $\bar{3}$.2419 | 89.9 |
| 0.1 | $\bar{3}$.2419 | 2833 | 3211 | 3558 | 3880 | 4180 | 4460 | 4723 | 4972 | 5206 | 5429 | 89.8 |
| 0.2 | 5429 | 5641 | 5843 | 6036 | 6221 | 6398 | 6569 | 6732 | 6890 | 7043 | 7190 | 89.7 |
| 0.3 | 7190 | 7332 | 7470 | 7604 | 7734 | 7860 | 7982 | 8101 | 8217 | 8329 | 8439 | 89.6 |
| 0.4 | 8439 | 8547 | 8651 | 8754 | 8853 | 8951 | 9046 | 9140 | 9231 | 9321 | $\bar{3}$.9409 | 89.5 |
| 0.5 | $\bar{3}$.9409 | 9495 | 9579 | 9662 | 9743 | 9823 | 9901 | 9978 | 0053 | 0127 | $\bar{2}$.0200 | 89.4 |
| 0.6 | $\bar{2}$.0200 | 0272 | 0343 | 0412 | 0481 | 0548 | 0614 | 0680 | 0744 | 0807 | 0870 | 89.3 |
| 0.7 | 0870 | 0932 | 0992 | 1052 | 1111 | 1170 | 1227 | 1284 | 1340 | 1395 | 1450 | 89.2 |
| 0.8 | 1450 | 1504 | 1557 | 1610 | 1662 | 1713 | 1764 | 1814 | 1864 | 1913 | 1962 | 89.1 |
| 0.9 | 1962 | 2010 | 2057 | 2104 | 2150 | 2196 | 2242 | 2287 | 2331 | 2376 | $\bar{2}$.2419 | 89°.0 |
| 1°.0 | $\bar{2}$.2419 | 2462 | 2505 | 2548 | 2590 | 2631 | 2672 | 2713 | 2754 | 2794 | 2833 | 88.9 |
| 1.1 | 2833 | 2873 | 2912 | 2950 | 2988 | 3026 | 3064 | 3101 | 3138 | 3175 | 3211 | 88.8 |
| 1.2 | 3211 | 3247 | 3283 | 3318 | 3354 | 3389 | 3423 | 3458 | 3492 | 3525 | 3559 | 88.7 |
| 1.3 | 3559 | 3592 | 3625 | 3658 | 3691 | 3723 | 3755 | 3787 | 3818 | 3850 | 3881 | 88.6 |
| 1.4 | 3881 | 3912 | 3943 | 3973 | 4003 | 4033 | 4063 | 4093 | 4122 | 4152 | 4181 | 88.5 |
| 1.5 | 4181 | 4210 | 4238 | 4267 | 4295 | 4323 | 4351 | 4379 | 4406 | 4434 | 4461 | 88.4 |
| 1.6 | 4461 | 4488 | 4515 | 4542 | 4568 | 4595 | 4621 | 4647 | 4673 | 4699 | 4725 | 88.3 |
| 1.7 | 4725 | 4750 | 4775 | 4801 | 4826 | 4851 | 4875 | 4900 | 4924 | 4949 | 4973 | 88.2 |
| 1.8 | 4973 | 4997 | 5021 | 5045 | 5068 | 5092 | 5115 | 5139 | 5162 | 5185 | 5208 | 88.1 |
| 1.9 | 5208 | 5231 | 5253 | 5276 | 5298 | 5321 | 5343 | 5365 | 5387 | 5409 | $\bar{2}$.5431 | 88°.0 |
| 2°.0 | $\bar{2}$.5431 | 5453 | 5474 | 5496 | 5517 | 5538 | 5559 | 5580 | 5601 | 5622 | 5643 | 87.9 |
| 2.1 | 5643 | 5664 | 5684 | 5705 | 5725 | 5745 | 5765 | 5785 | 5805 | 5825 | 5845 | 87.8 |
| 2.2 | 5845 | 5865 | 5884 | 5904 | 5923 | 5943 | 5962 | 5981 | 6000 | 6019 | 6038 | 87.7 |
| 2.3 | 6038 | 6057 | 6076 | 6095 | 6113 | 6132 | 6150 | 6169 | 6187 | 6205 | 6223 | 87.6 |
| 2.4 | 6223 | 6242 | 6260 | 6277 | 6295 | 6313 | 6331 | 6348 | 6366 | 6384 | 6401 | 87.5 |
| 2.5 | 6401 | 6418 | 6436 | 6453 | 6470 | 6487 | 6504 | 6521 | 6538 | 6555 | 6571 | 87.4 |
| 2.6 | 6571 | 6588 | 6605 | 6621 | 6638 | 6654 | 6671 | 6687 | 6703 | 6719 | 6736 | 87.3 |
| 2.7 | 6736 | 6752 | 6768 | 6784 | 6800 | 6815 | 6831 | 6847 | 6863 | 6878 | 6894 | 87.2 |
| 2.8 | 6894 | 6909 | 6925 | 6940 | 6956 | 6971 | 6986 | 7001 | 7016 | 7031 | 7046 | 87.1 |
| 2.9 | 7046 | 7061 | 7076 | 7091 | 7106 | 7121 | 7136 | 7150 | 7165 | 7179 | $\bar{2}$.7194 | 87°.0 |
| 3°.0 | $\bar{2}$.7194 | 7208 | 7223 | 7237 | 7252 | 7266 | 7280 | 7294 | 7308 | 7323 | 7337 | 86.9 |
| 3.1 | 7337 | 7351 | 7365 | 7379 | 7392 | 7406 | 7420 | 7434 | 7448 | 7461 | 7475 | 86.8 |
| 3.2 | 7475 | 7488 | 7502 | 7515 | 7529 | 7542 | 7556 | 7569 | 7582 | 7596 | 7609 | 86.7 |
| 3.3 | 7609 | 7622 | 7635 | 7648 | 7661 | 7674 | 7687 | 7700 | 7713 | 7726 | 7739 | 86.6 |
| 3.4 | 7739 | 7751 | 7764 | 7777 | 7790 | 7802 | 7815 | 7827 | 7840 | 7852 | 7865 | 86.5 |
| 3.5 | 7865 | 7877 | 7890 | 7902 | 7914 | 7927 | 7939 | 7951 | 7963 | 7975 | 7988 | 86.4 |
| 3.6 | 7988 | 8000 | 8012 | 8024 | 8036 | 8048 | 8059 | 8071 | 8083 | 8095 | 8107 | 86.3 |
| 3.7 | 8107 | 8119 | 8130 | 8142 | 8154 | 8165 | 8177 | 8188 | 8200 | 8212 | 8223 | 86.2 |
| 3.8 | 8223 | 8234 | 8246 | 8257 | 8269 | 8280 | 8291 | 8302 | 8314 | 8325 | 8336 | 86.1 |
| 3.9 | 8336 | 8347 | 8358 | 8370 | 8381 | 8392 | 8403 | 8414 | 8425 | 8436 | $\bar{2}$.8446 | 86°.0 |
| 4°.0 | $\bar{2}$.8446 | 8457 | 8468 | 8479 | 8490 | 8501 | 8511 | 8522 | 8533 | 8543 | 8554 | 85.9 |
| 4.1 | 8554 | 8565 | 8575 | 8586 | 8596 | 8607 | 8617 | 8628 | 8638 | 8649 | 8659 | 85.8 |
| 4.2 | 8659 | 8669 | 8680 | 8690 | 8700 | 8711 | 8721 | 8731 | 8741 | 8751 | 8762 | 85.7 |
| 4.3 | 8762 | 8772 | 8782 | 8792 | 8802 | 8812 | 8822 | 8832 | 8842 | 8852 | 8862 | 85.6 |
| 4.4 | 8862 | 8872 | 8882 | 8891 | 8901 | 8911 | 8921 | 8931 | 8940 | 8950 | 8960 | 85.5 |
| 4.5 | 8960 | 8970 | 8979 | 8989 | 8998 | 9008 | 9018 | 9027 | 9037 | 9046 | 9056 | 85.4 |
| 4.6 | 9056 | 9065 | 9075 | 9084 | 9093 | 9103 | 9112 | 9122 | 9131 | 9140 | 9150 | 85.3 |
| 4.7 | 9150 | 9159 | 9168 | 9177 | 9186 | 9196 | 9205 | 9214 | 9223 | 9232 | 9241 | 85.2 |
| 4.8 | 9241 | 9250 | 9260 | 9269 | 9278 | 9287 | 9296 | 9305 | 9313 | 9322 | 9331 | 85.1 |
| 4.9 | 9331 | 9340 | 9349 | 9358 | 9367 | 9376 | 9384 | 9393 | 9402 | 9411 | $\bar{2}$.9420 | 85°.0 |

Tenths of the Tabular Difference

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 4 | 8 | 11 | 15 | 19 |
| 3 | 7 | 10 | 14 | 17 |
| 3 | 6 | 10 | 13 | 16 |
| 3 | 6 | 9 | 12 | 15 |
| 3 | 6 | 8 | 11 | 14 |
| 3 | 5 | 8 | 11 | 13 |
| 2 | 5 | 7 | 10 | 12 |
| 2 | 5 | 7 | 9 | 12 |
| 2 | 4 | 7 | 9 | 11 |
| 2 | 4 | 6 | 8 | 11 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 6 | 7 | 9 |
| 2 | 4 | 5 | 7 | 9 |
| 2 | 3 | 5 | 7 | 9 |
| 2 | 3 | 5 | 7 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 1 | 3 | 4 | 6 | 7 |
| 1 | 3 | 4 | 6 | 7 |
| 1 | 3 | 4 | 6 | 7 |
| 1 | 3 | 4 | 5 | 7 |
| 1 | 3 | 4 | 5 | 6 |
| 1 | 3 | 4 | 5 | 6 |
| 1 | 2 | 4 | 5 | 6 |
| 1 | 2 | 4 | 5 | 6 |
| 1 | 2 | 3 | 5 | 6 |
| 1 | 2 | 3 | 5 | 6 |
| 1 | 2 | 3 | 4 | 6 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | 2 | 3 | 4 | 4 |
| 1 | 2 | 3 | 4 | 4 |

To avoid interpolation in the first eleven lines, use note.*

(Ordinary Interpolation would not be accurate in the first three lines.)

* When $x$ is between 0° and 1°.1, log tan $x$ = log rad $x$

[See page 28]



* When $x$ is between 88°.9 and 90°, log ctn $x$ = log rad (90°$-x$)

0187

| | Log Tan | | | | | | | | | | Log Cotan | | Tenths of the Tabular Difference | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | 1 | 2 | 3 | 4 | 5 |
| 5°.0 | $\bar{2}$.9420 | 9428 | 9437 | 9446 | 9454 | 9463 | 9472 | 9480 | 9489 | 9497 | $\bar{2}$.9506 | 84.9 | 1 | 2 | 3 | 3 | 4 |
| 5.1 | 9506 | 9515 | 9523 | 9532 | 9540 | 9549 | 9557 | 9565 | 9574 | 9582 | 9591 | 84.8 | 1 | 2 | 3 | 3 | 4 |
| 5.2 | 9591 | 9599 | 9608 | 9616 | 9624 | 9633 | 9641 | 9649 | 9657 | 9666 | 9674 | 84.7 | 1 | 2 | 2 | 3 | 4 |
| 5.3 | 9674 | 9682 | 9690 | 9699 | 9707 | 9715 | 9723 | 9731 | 9739 | 9747 | 9756 | 84.6 | 1 | 2 | 2 | 3 | 4 |
| 5.4 | 9756 | 9764 | 9772 | 9780 | 9788 | 9796 | 9804 | 9812 | 9820 | 9828 | 9836 | 84.5 | 1 | 2 | 2 | 3 | 4 |
| 5.5 | 9836 | 9844 | 9852 | 9860 | 9867 | 9875 | 9883 | 9891 | 9899 | 9907 | 9915 | 84.4 | 1 | 2 | 2 | 3 | 4 |
| 5.6 | 9915 | 9922 | 9930 | 9938 | 9946 | 9953 | 9961 | 9969 | 9977 | 9984 | $\bar{2}$.9992 | 84.3 | 1 | 2 | 2 | 3 | 4 |
| 5.7 | $\bar{2}$.9992 | 0000 | 0007 | 0015 | 0022 | 0030 | 0038 | 0045 | 0053 | 0060 | $\bar{1}$.0068 | 84.2 | 1 | 2 | 2 | 3 | 4 |
| 5.8 | $\bar{1}$.0068 | 0075 | 0083 | 0090 | 0098 | 0105 | 0113 | 0120 | 0128 | 0135 | 0143 | 84.1 | 1 | 1 | 2 | 3 | 4 |
| 5.9 | 0143 | 0150 | 0157 | 0165 | 0172 | 0180 | 0187 | 0194 | 0202 | 0209 | $\bar{1}$.0216 | 84°.0 | 1 | 1 | 2 | 3 | 4 |
| 6°.0 | $\bar{1}$.0216 | 0223 | 0231 | 0238 | 0245 | 0253 | 0260 | 0267 | 0274 | 0281 | 0289 | 83.9 | 1 | 1 | 2 | 3 | 4 |
| 6.1 | 0289 | 0296 | 0303 | 0310 | 0317 | 0324 | 0331 | 0338 | 0346 | 0353 | 0360 | 83.8 | 1 | 1 | 2 | 3 | 4 |
| 6.2 | 0360 | 0367 | 0374 | 0381 | 0388 | 0395 | 0402 | 0409 | 0416 | 0423 | 0430 | 83.7 | 1 | 1 | 2 | 3 | 4 |
| 6.3 | 0430 | 0437 | 0444 | 0451 | 0457 | 0464 | 0471 | 0478 | 0485 | 0492 | 0499 | 83.6 | 1 | 1 | 2 | 3 | 3 |
| 6.4 | 0499 | 0506 | 0512 | 0519 | 0526 | 0533 | 0540 | 0546 | 0553 | 0560 | 0567 | 83.5 | 1 | 1 | 2 | 3 | 3 |
| 6.5 | 0567 | 0573 | 0580 | 0587 | 0593 | 0600 | 0607 | 0614 | 0620 | 0627 | 0633 | 83.4 | 1 | 1 | 2 | 3 | 3 |
| 6.6 | 0633 | 0640 | 0647 | 0653 | 0660 | 0667 | 0673 | 0680 | 0686 | 0693 | 0699 | 83.3 | 1 | 1 | 2 | 3 | 3 |
| 6.7 | 0699 | 0706 | 0712 | 0719 | 0725 | 0732 | 0738 | 0745 | 0751 | 0758 | 0764 | 83.2 | 1 | 1 | 2 | 3 | 3 |
| 6.8 | 0764 | 0771 | 0777 | 0784 | 0790 | 0796 | 0803 | 0809 | 0816 | 0822 | 0828 | 83.1 | 1 | 1 | 2 | 3 | 3 |
| 6.9 | 0828 | 0835 | 0841 | 0847 | 0854 | 0860 | 0866 | 0873 | 0879 | 0885 | $\bar{1}$.0891 | 83°.0 | 1 | 1 | 2 | 3 | 3 |
| 7°.0 | $\bar{1}$.0891 | 0898 | 0904 | 0910 | 0916 | 0923 | 0929 | 0935 | 0941 | 0947 | 0954 | 82.9 | 1 | 1 | 2 | 2 | 3 |
| 7.1 | 0954 | 0960 | 0966 | 0972 | 0978 | 0984 | 0991 | 0997 | 1003 | 1009 | 1015 | 82.8 | 1 | 1 | 2 | 2 | 3 |
| 7.2 | 1015 | 1021 | 1027 | 1033 | 1039 | 1045 | 1051 | 1058 | 1064 | 1070 | 1076 | 82.7 | 1 | 1 | 2 | 2 | 3 |
| 7.3 | 1076 | 1082 | 1088 | 1094 | 1100 | 1106 | 1112 | 1117 | 1123 | 1129 | 1135 | 82.6 | 1 | 1 | 2 | 2 | 3 |
| 7.4 | 1135 | 1141 | 1147 | 1153 | 1159 | 1165 | 1171 | 1177 | 1183 | 1188 | 1194 | 82.5 | 1 | 1 | 2 | 2 | 3 |
| 7.5 | 1194 | 1200 | 1206 | 1212 | 1218 | 1223 | 1229 | 1235 | 1241 | 1247 | 1252 | 82.4 | 1 | 1 | 2 | 2 | 3 |
| 7.6 | 1252 | 1258 | 1264 | 1270 | 1276 | 1281 | 1287 | 1293 | 1299 | 1304 | 1310 | 82.3 | 1 | 1 | 2 | 2 | 3 |
| 7.7 | 1310 | 1316 | 1321 | 1327 | 1333 | 1338 | 1344 | 1350 | 1355 | 1361 | 1367 | 82.2 | 1 | 1 | 2 | 2 | 3 |
| 7.8 | 1367 | 1372 | 1378 | 1384 | 1389 | 1395 | 1400 | 1406 | 1412 | 1417 | 1423 | 82.1 | 1 | 1 | 2 | 2 | 3 |
| 7.9 | 1423 | 1428 | 1434 | 1439 | 1445 | 1450 | 1456 | 1461 | 1467 | 1473 | $\bar{1}$.1478 | 82°.0 | 1 | 1 | 2 | 2 | 3 |
| 8°.0 | $\bar{1}$.1478 | 1484 | 1489 | 1494 | 1500 | 1505 | 1511 | 1516 | 1522 | 1527 | 1533 | 81.9 | 1 | 1 | 2 | 2 | 3 |
| 8.1 | 1533 | 1538 | 1544 | 1549 | 1554 | 1560 | 1565 | 1571 | 1576 | 1581 | 1587 | 81.8 | 1 | 1 | 2 | 2 | 3 |
| 8.2 | 1587 | 1592 | 1597 | 1603 | 1608 | 1613 | 1619 | 1624 | 1629 | 1635 | 1640 | 81.7 | 1 | 1 | 2 | 2 | 3 |
| 8.3 | 1640 | 1645 | 1651 | 1656 | 1661 | 1667 | 1672 | 1677 | 1682 | 1688 | 1693 | 81.6 | 1 | 1 | 2 | 2 | 3 |
| 8.4 | 1693 | 1698 | 1703 | 1709 | 1714 | 1719 | 1724 | 1729 | 1735 | 1740 | 1745 | 81.5 | 1 | 1 | 2 | 2 | 3 |
| 8.5 | 1745 | 1750 | 1755 | 1761 | 1766 | 1771 | 1776 | 1781 | 1786 | 1791 | 1797 | 81.4 | 1 | 1 | 2 | 2 | 3 |
| 8.6 | 1797 | 1802 | 1807 | 1812 | 1817 | 1822 | 1827 | 1832 | 1837 | 1842 | 1848 | 81.3 | 1 | 1 | 2 | 2 | 3 |
| 8.7 | 1848 | 1853 | 1858 | 1863 | 1868 | 1873 | 1878 | 1883 | 1888 | 1893 | 1898 | 81.2 | 1 | 1 | 2 | 2 | 3 |
| 8.8 | 1898 | 1903 | 1908 | 1913 | 1918 | 1923 | 1928 | 1933 | 1938 | 1943 | 1948 | 81.1 | 0 | 1 | 1 | 2 | 2 |
| 8.9 | 1948 | 1953 | 1958 | 1963 | 1968 | 1973 | 1977 | 1982 | 1987 | 1992 | $\bar{1}$.1997 | 81°.0 | 0 | 1 | 1 | 2 | 2 |
| 9°.0 | $\bar{1}$.1997 | 2002 | 2007 | 2012 | 2017 | 2022 | 2026 | 2031 | 2036 | 2041 | 2046 | 80.9 | 0 | 1 | 1 | 2 | 2 |
| 9.1 | 2046 | 2051 | 2056 | 2060 | 2065 | 2070 | 2075 | 2080 | 2085 | 2089 | 2094 | 80.8 | 0 | 1 | 1 | 2 | 2 |
| 9.2 | 2094 | 2099 | 2104 | 2109 | 2113 | 2118 | 2123 | 2128 | 2132 | 2137 | 2142 | 80.7 | 0 | 1 | 1 | 2 | 2 |
| 9.3 | 2142 | 2147 | 2151 | 2156 | 2161 | 2166 | 2170 | 2175 | 2180 | 2185 | 2189 | 80.6 | 0 | 1 | 1 | 2 | 2 |
| 9.4 | 2189 | 2194 | 2199 | 2203 | 2208 | 2213 | 2217 | 2222 | 2227 | 2231 | 2236 | 80.5 | 0 | 1 | 1 | 2 | 2 |
| 9.5 | 2236 | 2241 | 2245 | 2250 | 2255 | 2259 | 2264 | 2269 | 2273 | 2278 | 2282 | 80.4 | 0 | 1 | 1 | 2 | 2 |
| 9.6 | 2282 | 2287 | 2292 | 2296 | 2301 | 2305 | 2310 | 2315 | 2319 | 2324 | 2328 | 80.3 | 0 | 1 | 1 | 2 | 2 |
| 9.7 | 2328 | 2333 | 2337 | 2342 | 2346 | 2351 | 2356 | 2360 | 2365 | 2369 | 2374 | 80.2 | 0 | 1 | 1 | 2 | 2 |
| 9.8 | 2374 | 2378 | 2383 | 2387 | 2392 | 2396 | 2401 | 2405 | 2410 | 2414 | 2419 | 80.1 | 0 | 1 | 1 | 2 | 2 |
| 9.9 | $\bar{1}$.2419 | 2423 | 2428 | 2432 | 2437 | 2441 | 2445 | 2450 | 2454 | 2459 | $\bar{1}$.2463 | 80°.0 | 0 | 1 | 1 | 2 | 2 |



log tan & log ctn

## Log Tan — Log Cotan

| | .0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | .0 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | $-\infty$ | 90° |
| 0° | $-\infty$ | $\bar{3}$.2419 | 5429 | 7190 | 8439 | 9409 | 0200 | 0870 | 1450 | 1962 | $\bar{2}$.2419 | 89 |
| 1 | $\bar{2}$.2419 | 2833 | 3211 | 3559 | 3881 | 4181 | 4461 | 4725 | 4973 | 5208 | 5431 | 88 |
| 2 | 5431 | 5643 | 5845 | 6038 | 6223 | 6401 | 6571 | 6736 | 6894 | 7046 | 7194 | 87 |
| 3 | 7194 | 7337 | 7475 | 7609 | 7739 | 7865 | 7988 | 8107 | 8223 | 8336 | 8446 | 86 |
| 4 | 8446 | 8554 | 8659 | 8762 | 8862 | 8960 | 9056 | 9150 | 9241 | 9331 | $\bar{2}$.9420 | 85 |
| 5 | $\bar{2}$.9420 | 9506 | 9591 | 9674 | 9756 | 9836 | 9915 | 9992 | 0068 | 0143 | $\bar{1}$.0216 | 84 |
| 6 | $\bar{1}$.0216 | 0289 | 0360 | 0430 | 0499 | 0567 | 0633 | 0699 | 0764 | 0828 | 0891 | 83 |
| 7 | 0891 | 0954 | 1015 | 1076 | 1135 | 1194 | 1252 | 1310 | 1367 | 1423 | 1478 | 82 |
| 8 | 1478 | 1533 | 1587 | 1640 | 1693 | 1745 | 1797 | 1848 | 1898 | 1948 | 1997 | 81 |
| 9 | 1997 | 2046 | 2094 | 2142 | 2189 | 2236 | 2282 | 2328 | 2374 | 2419 | $\bar{1}$.2463 | 80° |
| 10° | $\bar{1}$.2463 | 2507 | 2551 | 2594 | 2637 | 2680 | 2722 | 2764 | 2805 | 2846 | 2887 | 79 |
| 11 | 2887 | 2927 | 2967 | 3006 | 3046 | 3085 | 3123 | 3162 | 3200 | 3237 | 3275 | 78 |
| 12 | 3275 | 3312 | 3349 | 3385 | 3422 | 3458 | 3493 | 3529 | 3564 | 3599 | 3634 | 77 |
| 13 | 3634 | 3668 | 3702 | 3736 | 3770 | 3804 | 3837 | 3870 | 3903 | 3935 | 3968 | 76 |
| 14 | 3968 | 4000 | 4032 | 4064 | 4095 | 4127 | 4158 | 4189 | 4220 | 4250 | 4281 | 75 |
| 15 | 4281 | 4311 | 4341 | 4371 | 4400 | 4430 | 4459 | 4488 | 4517 | 4546 | 4575 | 74 |
| 16 | 4575 | 4603 | 4632 | 4660 | 4688 | 4716 | 4744 | 4771 | 4799 | 4826 | 4853 | 73 |
| 17 | 4853 | 4880 | 4907 | 4934 | 4961 | 4987 | 5014 | 5040 | 5066 | 5092 | 5118 | 72 |
| 18 | 5118 | 5143 | 5169 | 5195 | 5220 | 5245 | 5270 | 5295 | 5320 | 5345 | 5370 | 71 |
| 19 | 5370 | 5394 | 5419 | 5443 | 5467 | 5491 | 5516 | 5539 | 5563 | 5587 | $\bar{1}$.5611 | 70° |
| 20° | $\bar{1}$.5611 | 5634 | 5658 | 5681 | 5704 | 5727 | 5750 | 5773 | 5796 | 5819 | 5842 | 69 |
| 21 | 5842 | 5864 | 5887 | 5909 | 5932 | 5954 | 5976 | 5998 | 6020 | 6042 | 6064 | 68 |
| 22 | 6064 | 6086 | 6108 | 6129 | 6151 | 6172 | 6194 | 6215 | 6236 | 6257 | 6279 | 67 |
| 23 | 6279 | 6300 | 6321 | 6341 | 6362 | 6383 | 6404 | 6424 | 6445 | 6465 | 6486 | 66 |
| 24 | 6486 | 6506 | 6527 | 6547 | 6567 | 6587 | 6607 | 6627 | 6647 | 6667 | 6687 | 65 |
| 25 | 6687 | 6706 | 6726 | 6746 | 6765 | 6785 | 6804 | 6824 | 6843 | 6863 | 6882 | 64 |
| 26 | 6882 | 6901 | 6920 | 6939 | 6958 | 6977 | 6996 | 7015 | 7034 | 7053 | 7072 | 63 |
| 27 | 7072 | 7090 | 7109 | 7128 | 7146 | 7165 | 7183 | 7202 | 7220 | 7238 | 7257 | 62 |
| 28 | 7257 | 7275 | 7293 | 7311 | 7330 | 7348 | 7366 | 7384 | 7402 | 7420 | 7438 | 61 |
| 29 | 7438 | 7455 | 7473 | 7491 | 7509 | 7526 | 7544 | 7562 | 7579 | 7597 | $\bar{1}$.7614 | 60° |
| 30° | $\bar{1}$.7614 | 7632 | 7649 | 7667 | 7684 | 7701 | 7719 | 7736 | 7753 | 7771 | 7788 | 59 |
| 31 | 7788 | 7805 | 7822 | 7839 | 7856 | 7873 | 7890 | 7907 | 7924 | 7941 | 7958 | 58 |
| 32 | 7958 | 7975 | 7992 | 8008 | 8025 | 8042 | 8059 | 8075 | 8092 | 8109 | 8125 | 57 |
| 33 | 8125 | 8142 | 8158 | 8175 | 8191 | 8208 | 8224 | 8241 | 8257 | 8274 | 8290 | 56 |
| 34 | 8290 | 8306 | 8323 | 8339 | 8355 | 8371 | 8388 | 8404 | 8420 | 8436 | 8452 | 55 |
| 35 | 8452 | 8468 | 8484 | 8501 | 8517 | 8533 | 8549 | 8565 | 8581 | 8597 | 8613 | 54 |
| 36 | 8613 | 8629 | 8644 | 8660 | 8676 | 8692 | 8708 | 8724 | 8740 | 8755 | 8771 | 53 |
| 37 | 8771 | 8787 | 8803 | 8818 | 8834 | 8850 | 8865 | 8881 | 8897 | 8912 | 8928 | 52 |
| 38 | 8928 | 8944 | 8959 | 8975 | 8990 | 9006 | 9022 | 9037 | 9053 | 9068 | 9084 | 51 |
| 39 | 9084 | 9099 | 9115 | 9130 | 9146 | 9161 | 9176 | 9192 | 9207 | 9223 | $\bar{1}$.9238 | 50° |
| 40° | $\bar{1}$.9238 | 9254 | 9269 | 9284 | 9300 | 9315 | 9330 | 9346 | 9361 | 9376 | 9392 | 49 |
| 41 | 9392 | 9407 | 9422 | 9438 | 9453 | 9468 | 9483 | 9499 | 9514 | 9529 | 9544 | 48 |
| 42 | 9544 | 9560 | 9575 | 9590 | 9605 | 9621 | 9636 | 9651 | 9666 | 9681 | 9697 | 47 |
| 43 | 9697 | 9712 | 9727 | 9742 | 9757 | 9772 | 9788 | 9803 | 9818 | 9833 | $\bar{1}$.9848 | 46 |
| 44 | $\bar{1}$.9848 | 9864 | 9879 | 9894 | 9909 | 9924 | 9939 | 9955 | 9970 | 9985 | 0.0000 | 45° |
| 45° | 0.0000 | | | | | | | | | | | |

Tenths of the Tabular Difference

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 4 | 8 | 13 | 17 | 21 |
| 4 | 8 | 12 | 16 | 19 |
| 4 | 7 | 11 | 14 | 18 |
| 3 | 7 | 10 | 13 | 17 |
| 3 | 6 | 9 | 13 | 16 |
| 3 | 6 | 9 | 12 | 15 |
| 3 | 6 | 8 | 11 | 14 |
| 3 | 5 | 8 | 11 | 13 |
| 3 | 5 | 8 | 10 | 13 |
| 2 | 5 | 7 | 10 | 12 |
| 2 | 5 | 7 | 10 | 12 |
| 2 | 4 | 7 | 9 | 11 |
| 2 | 4 | 6 | 9 | 11 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 6 | 8 | 9 |
| 2 | 4 | 6 | 7 | 9 |
| 2 | 4 | 5 | 7 | 9 |
| 2 | 4 | 5 | 7 | 9 |
| 2 | 3 | 5 | 7 | 9 |
| 2 | 3 | 5 | 7 | 9 |
| 2 | 3 | 5 | 7 | 8 |
| 2 | 3 | 5 | 7 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |

To avoid interpolation in the first ten lines use the special table on the preceding page. (Ordinary interpolation would not be accurate in the first three lines.)

## Log Tan — Log Cotan

| | .0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | .0 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0.0000 | 45° |
| 45° | 0.0000 | 0015 | 0030 | 0045 | 0061 | 0076 | 0091 | 0106 | 0121 | 0136 | 0152 | 44 |
| 46 | 0152 | 0167 | 0182 | 0197 | 0212 | 0228 | 0243 | 0258 | 0273 | 0288 | 0303 | 43 |
| 47 | 0303 | 0319 | 0334 | 0349 | 0364 | 0379 | 0395 | 0410 | 0425 | 0440 | 0456 | 42 |
| 48 | 0456 | 0471 | 0486 | 0501 | 0517 | 0532 | 0547 | 0562 | 0578 | 0593 | 0608 | 41 |
| 49 | 0608 | 0624 | 0639 | 0654 | 0670 | 0685 | 0700 | 0716 | 0731 | 0746 | 0.0762 | 40° |
| 50° | 0.0762 | 0777 | 0793 | 0808 | 0824 | 0839 | 0854 | 0870 | 0885 | 0901 | 0916 | 39 |
| 51 | 0916 | 0932 | 0947 | 0963 | 0978 | 0994 | 1010 | 1025 | 1041 | 1056 | 1072 | 38 |
| 52 | 1072 | 1088 | 1103 | 1119 | 1135 | 1150 | 1166 | 1182 | 1197 | 1213 | 1229 | 37 |
| 53 | 1229 | 1245 | 1260 | 1276 | 1292 | 1308 | 1324 | 1340 | 1356 | 1371 | 1387 | 36 |
| 54 | 1387 | 1403 | 1419 | 1435 | 1451 | 1467 | 1483 | 1499 | 1516 | 1532 | 1548 | 35 |
| 55 | 1548 | 1564 | 1580 | 1596 | 1612 | 1629 | 1645 | 1661 | 1677 | 1694 | 1710 | 34 |
| 56 | 1710 | 1726 | 1743 | 1759 | 1776 | 1792 | 1809 | 1825 | 1842 | 1858 | 1875 | 33 |
| 57 | 1875 | 1891 | 1908 | 1925 | 1941 | 1958 | 1975 | 1992 | 2008 | 2025 | 2042 | 32 |
| 58 | 2042 | 2059 | 2076 | 2093 | 2110 | 2127 | 2144 | 2161 | 2178 | 2195 | 2212 | 31 |
| 59 | 2212 | 2229 | 2247 | 2264 | 2281 | 2299 | 2316 | 2333 | 2351 | 2368 | 0.2386 | 30° |
| 60° | 0.2386 | 2403 | 2421 | 2438 | 2456 | 2474 | 2491 | 2509 | 2527 | 2545 | 2562 | 29 |
| 61 | 2562 | 2580 | 2598 | 2616 | 2634 | 2652 | 2670 | 2689 | 2707 | 2725 | 2743 | 28 |
| 62 | 2743 | 2762 | 2780 | 2798 | 2817 | 2835 | 2854 | 2872 | 2891 | 2910 | 2928 | 27 |
| 63 | 2928 | 2947 | 2966 | 2985 | 3004 | 3023 | 3042 | 3061 | 3080 | 3099 | 3118 | 26 |
| 64 | 3118 | 3137 | 3157 | 3176 | 3196 | 3215 | 3235 | 3254 | 3274 | 3294 | 3313 | 25 |
| 65 | 3313 | 3333 | 3353 | 3373 | 3393 | 3413 | 3433 | 3453 | 3473 | 3494 | 3514 | 24 |
| 66 | 3514 | 3535 | 3555 | 3576 | 3596 | 3617 | 3638 | 3659 | 3679 | 3700 | 3721 | 23 |
| 67 | 3721 | 3743 | 3764 | 3785 | 3806 | 3828 | 3849 | 3871 | 3892 | 3914 | 3936 | 22 |
| 68 | 3936 | 3958 | 3980 | 4002 | 4024 | 4046 | 4068 | 4091 | 4113 | 4136 | 4158 | 21 |
| 69 | 4158 | 4181 | 4204 | 4227 | 4250 | 4273 | 4296 | 4319 | 4342 | 4366 | 0.4389 | 20° |
| 70° | 0.4389 | 4413 | 4437 | 4461 | 4484 | 4509 | 4533 | 4557 | 4581 | 4606 | 4630 | 19 |
| 71 | 4630 | 4655 | 4680 | 4705 | 4730 | 4755 | 4780 | 4805 | 4831 | 4857 | 4882 | 18 |
| 72 | 4882 | 4908 | 4934 | 4960 | 4986 | 5013 | 5039 | 5066 | 5093 | 5120 | 5147 | 17 |
| 73 | 5147 | 5174 | 5201 | 5229 | 5256 | 5284 | 5312 | 5340 | 5368 | 5397 | 5425 | 16 |
| 74 | 5425 | 5454 | 5483 | 5512 | 5541 | 5570 | 5600 | 5629 | 5659 | 5689 | 5719 | 15 |
| 75 | 5719 | 5750 | 5780 | 5811 | 5842 | 5873 | 5905 | 5936 | 5968 | 6000 | 6032 | 14 |
| 76 | 6032 | 6065 | 6097 | 6130 | 6163 | 6196 | 6230 | 6264 | 6298 | 6332 | 6366 | 13 |
| 77 | 6366 | 6401 | 6436 | 6471 | 6507 | 6542 | 6578 | 6615 | 6651 | 6688 | 6725 | 12 |
| 78 | 6725 | 6763 | 6800 | 6838 | 6877 | 6915 | 6954 | 6994 | 7033 | 7073 | 7113 | 11 |
| 79 | 7113 | 7154 | 7195 | 7236 | 7278 | 7320 | 7363 | 7406 | 7449 | 7493 | 0.7537 | 10° |
| 80° | 0.7537 | 7581 | 7626 | 7672 | 7718 | 7764 | 7811 | 7858 | 7906 | 7954 | 8003 | 9 |
| 81 | 8003 | 8052 | 8102 | 8152 | 8203 | 8255 | 8307 | 8360 | 8413 | 8467 | 8522 | 8 |
| 82 | 8522 | 8577 | 8633 | 8690 | 8748 | 8806 | 8865 | 8924 | 8985 | 9046 | 9109 | 7 |
| 83 | 9109 | 9172 | 9236 | 9301 | 9367 | 9433 | 9501 | 9570 | 9640 | 9711 | 0.9784 | 6 |
| 84 | 0.9784 | 9857 | 9932 | 0008 | 0085 | 0164 | 0244 | 0326 | 0409 | 0494 | 1.0580 | 5 |
| 85 | 1.0580 | 0669 | 0759 | 0850 | 0944 | 1040 | 1138 | 1238 | 1341 | 1446 | 1554 | 4 |
| 86 | 1554 | 1664 | 1777 | 1893 | 2012 | 2135 | 2261 | 2391 | 2525 | 2663 | 2806 | 3 |
| 87 | 2806 | 2954 | 3106 | 3264 | 3429 | 3599 | 3777 | 3962 | 4155 | 4357 | 4569 | 2 |
| 88 | 4569 | 4792 | 5027 | 5275 | 5539 | 5819 | 6119 | 6441 | 6789 | 7167 | 1.7581 | 1 |
| 89 | 1.7581 | 8038 | 8550 | 9130 | 9800 | 2.0591 | 1561 | 2810 | 4571 | 7581 | ∞ | 0° |
| 90° | ∞ | | | | | | | | | | | |

Tenths of the Tabular Difference

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 6 | 8 |
| 2 | 3 | 5 | 7 | 8 |
| 2 | 3 | 5 | 7 | 8 |
| 2 | 3 | 5 | 7 | 9 |
| 2 | 3 | 5 | 7 | 9 |
| 2 | 4 | 5 | 7 | 9 |
| 2 | 4 | 5 | 7 | 9 |
| 2 | 4 | 6 | 7 | 9 |
| 2 | 4 | 6 | 8 | 9 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 6 | 8 | 10 |
| 2 | 4 | 6 | 9 | 11 |
| 2 | 4 | 7 | 9 | 11 |
| 2 | 5 | 7 | 10 | 12 |
| 2 | 5 | 7 | 10 | 12 |
| 3 | 5 | 8 | 10 | 13 |
| 3 | 5 | 8 | 11 | 13 |
| 3 | 6 | 8 | 11 | 14 |
| 3 | 6 | 9 | 12 | 15 |
| 3 | 6 | 9 | 13 | 16 |
| 3 | 7 | 10 | 13 | 17 |
| 4 | 7 | 11 | 14 | 18 |
| 4 | 8 | 12 | 16 | 19 |
| 4 | 8 | 13 | 17 | 21 |

To avoid interpolation in the last ten lines, use the special table on the following page.

(Ordinary interpolation would not be accurate in the last three lines.)

| Log Tan | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Log Cotan | | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80°.0 | 0.7537 | 7541 | 7546 | 7550 | 7555 | 7559 | 7563 | 7568 | 7572 | 7577 | 0.7581 | 9.9 | 0 | 1 | 1 | 2 | 2 |
| 80.1 | 7581 | 7586 | 7590 | 7595 | 7599 | 7604 | 7608 | 7613 | 7617 | 7622 | 7626 | 9.8 | 0 | 1 | 1 | 2 | 2 |
| 80.2 | 7626 | 7631 | 7635 | 7640 | 7644 | 7649 | 7654 | 7658 | 7663 | 7667 | 7672 | 9.7 | 0 | 1 | 1 | 2 | 2 |
| 80.3 | 7672 | 7676 | 7681 | 7685 | 7690 | 7695 | 7699 | 7704 | 7708 | 7713 | 7718 | 9.6 | 0 | 1 | 1 | 2 | 2 |
| 80.4 | 7718 | 7722 | 7727 | 7731 | 7736 | 7741 | 7745 | 7750 | 7755 | 7759 | 7764 | 9.5 | 0 | 1 | 1 | 2 | 2 |
| 80.5 | 7764 | 7769 | 7773 | 7778 | 7783 | 7787 | 7792 | 7797 | 7801 | 7806 | 7811 | 9.4 | 0 | 1 | 1 | 2 | 2 |
| 80.6 | 7811 | 7815 | 7820 | 7825 | 7830 | 7834 | 7839 | 7844 | 7849 | 7853 | 7858 | 9.3 | 0 | 1 | 1 | 2 | 2 |
| 80.7 | 7858 | 7863 | 7868 | 7872 | 7877 | 7882 | 7887 | 7891 | 7896 | 7901 | 7906 | 9.2 | 0 | 1 | 1 | 2 | 2 |
| 80.8 | 7906 | 7911 | 7915 | 7920 | 7925 | 7930 | 7935 | 7940 | 7944 | 7949 | 7954 | 9.1 | 0 | 1 | 1 | 2 | 2 |
| 80.9 | 7954 | 7959 | 7964 | 7969 | 7974 | 7978 | 7983 | 7988 | 7993 | 7998 | 0.8003 | 9°.0 | 0 | 1 | 1 | 2 | 2 |
| 81°.0 | 0.8003 | 8008 | 8013 | 8018 | 8023 | 8027 | 8032 | 8037 | 8042 | 8047 | 8052 | 8.9 | 0 | 1 | 1 | 2 | 2 |
| 81.1 | 8052 | 8057 | 8062 | 8067 | 8072 | 8077 | 8082 | 8087 | 8092 | 8097 | 8102 | 8.8 | 0 | 1 | 1 | 2 | 2 |
| 81.2 | 8102 | 8107 | 8112 | 8117 | 8122 | 8127 | 8132 | 8137 | 8142 | 8147 | 8152 | 8.7 | 1 | 1 | 2 | 2 | 3 |
| 81.3 | 8152 | 8158 | 8163 | 8168 | 8173 | 8178 | 8183 | 8188 | 8193 | 8198 | 8203 | 8.6 | 1 | 1 | 2 | 2 | 3 |
| 81.4 | 8203 | 8209 | 8214 | 8219 | 8224 | 8229 | 8234 | 8239 | 8245 | 8250 | 8255 | 8.5 | 1 | 1 | 2 | 2 | 3 |
| 81.5 | 8255 | 8260 | 8265 | 8271 | 8276 | 8281 | 8286 | 8291 | 8297 | 8302 | 8307 | 8.4 | 1 | 1 | 2 | 2 | 3 |
| 81.6 | 8307 | 8312 | 8318 | 8323 | 8328 | 8333 | 8339 | 8344 | 8349 | 8355 | 8360 | 8.3 | 1 | 1 | 2 | 2 | 3 |
| 81.7 | 8360 | 8365 | 8371 | 8376 | 8381 | 8387 | 8392 | 8397 | 8403 | 8408 | 8413 | 8.2 | 1 | 1 | 2 | 2 | 3 |
| 81.8 | 8413 | 8419 | 8424 | 8429 | 8435 | 8440 | 8446 | 8451 | 8456 | 8462 | 8467 | 8.1 | 1 | 1 | 2 | 2 | 3 |
| 81.9 | 8467 | 8473 | 8478 | 8484 | 8489 | 8495 | 8500 | 8506 | 8511 | 8516 | 0.8522 | 8°.0 | 1 | 1 | 2 | 2 | 3 |
| 82°.0 | 0.8522 | 8527 | 8533 | 8539 | 8544 | 8550 | 8555 | 8561 | 8566 | 8572 | 8577 | 7.9 | 1 | 1 | 2 | 2 | 3 |
| 82.1 | 8577 | 8583 | 8588 | 8594 | 8600 | 8605 | 8611 | 8616 | 8622 | 8628 | 8633 | 7.8 | 1 | 1 | 2 | 2 | 3 |
| 82.2 | 8633 | 8639 | 8645 | 8650 | 8656 | 8662 | 8667 | 8673 | 8679 | 8684 | 8690 | 7.7 | 1 | 1 | 2 | 2 | 3 |
| 82.3 | 8690 | 8696 | 8701 | 8707 | 8713 | 8719 | 8724 | 8730 | 8736 | 8742 | 8748 | 7.6 | 1 | 1 | 2 | 2 | 3 |
| 82.4 | 8748 | 8753 | 8759 | 8765 | 8771 | 8777 | 8782 | 8788 | 8794 | 8800 | 8806 | 7.5 | 1 | 1 | 2 | 2 | 3 |
| 82.5 | 8806 | 8812 | 8817 | 8823 | 8829 | 8835 | 8841 | 8847 | 8853 | 8859 | 8865 | 7.4 | 1 | 1 | 2 | 2 | 3 |
| 82.6 | 8865 | 8871 | 8877 | 8883 | 8888 | 8894 | 8900 | 8906 | 8912 | 8918 | 8924 | 7.3 | 1 | 1 | 2 | 2 | 3 |
| 82.7 | 8924 | 8930 | 8936 | 8942 | 8949 | 8955 | 8961 | 8967 | 8973 | 8979 | 8985 | 7.2 | 1 | 1 | 2 | 2 | 3 |
| 82.8 | 8985 | 8991 | 8997 | 9003 | 9009 | 9016 | 9022 | 9028 | 9034 | 9040 | 9046 | 7.1 | 1 | 1 | 2 | 2 | 3 |
| 82.9 | 9046 | 9053 | 9059 | 9065 | 9071 | 9077 | 9084 | 9090 | 9096 | 9102 | 0.9109 | 7°.0 | 1 | 1 | 2 | 2 | 3 |
| 83°.0 | 0.9109 | 9115 | 9121 | 9127 | 9134 | 9140 | 9146 | 9153 | 9159 | 9165 | 9172 | 6.9 | 1 | 1 | 2 | 3 | 3 |
| 83.1 | 9172 | 9178 | 9184 | 9191 | 9197 | 9204 | 9210 | 9216 | 9223 | 9229 | 9236 | 6.8 | 1 | 1 | 2 | 3 | 3 |
| 83.2 | 9236 | 9242 | 9249 | 9255 | 9262 | 9268 | 9275 | 9281 | 9288 | 9294 | 9301 | 6.7 | 1 | 1 | 2 | 3 | 3 |
| 83.3 | 9301 | 9307 | 9314 | 9320 | 9327 | 9333 | 9340 | 9347 | 9353 | 9360 | 9367 | 6.6 | 1 | 1 | 2 | 3 | 3 |
| 83.4 | 9367 | 9373 | 9380 | 9386 | 9393 | 9400 | 9407 | 9413 | 9420 | 9427 | 9433 | 6.5 | 1 | 1 | 2 | 3 | 3 |
| 83.5 | 9433 | 9440 | 9447 | 9454 | 9460 | 9467 | 9474 | 9481 | 9488 | 9494 | 9501 | 6.4 | 1 | 1 | 2 | 3 | 3 |
| 83.6 | 9501 | 9508 | 9515 | 9522 | 9529 | 9536 | 9543 | 9549 | 9556 | 9563 | 9570 | 6.3 | 1 | 1 | 2 | 3 | 3 |
| 83.7 | 9570 | 9577 | 9584 | 9591 | 9598 | 9605 | 9612 | 9619 | 9626 | 9633 | 9640 | 6.2 | 1 | 1 | 2 | 3 | 4 |
| 83.8 | 9640 | 9647 | 9654 | 9662 | 9669 | 9676 | 9683 | 9690 | 9697 | 9704 | 9711 | 6.1 | 1 | 1 | 2 | 3 | 4 |
| 83.9 | 9711 | 9719 | 9726 | 9733 | 9740 | 9747 | 9755 | 9762 | 9769 | 9777 | 0.9784 | 6°.0 | 1 | 1 | 2 | 3 | 4 |
| 84°.0 | 0.9784 | 9791 | 9798 | 9806 | 9813 | 9820 | 9828 | 9835 | 9843 | 9850 | 9857 | 5.9 | 1 | 1 | 2 | 3 | 4 |
| 84.1 | 9857 | 9865 | 9872 | 9880 | 9887 | 9895 | 9902 | 9910 | 9917 | 9925 | 0.9932 | 5.8 | 1 | 1 | 2 | 3 | 4 |
| 84.2 | 0.9932 | 9940 | 9947 | 9955 | 9962 | 9970 | 9978 | 9985 | 9993 | 0000 | 1.0008 | 5.7 | 1 | 2 | 2 | 3 | 4 |
| 84.3 | 1.0008 | 0016 | 0023 | 0031 | 0039 | 0047 | 0054 | 0062 | 0070 | 0078 | 0085 | 5.6 | 1 | 2 | 2 | 3 | 4 |
| 84.4 | 0085 | 0093 | 0101 | 0109 | 0117 | 0125 | 0133 | 0140 | 0148 | 0156 | 0164 | 5.5 | 1 | 2 | 2 | 3 | 4 |
| 84.5 | 0164 | 0172 | 0180 | 0188 | 0196 | 0204 | 0212 | 0220 | 0228 | 0236 | 0244 | 5.4 | 1 | 2 | 2 | 3 | 4 |
| 84.6 | 0244 | 0253 | 0261 | 0269 | 0277 | 0285 | 0293 | 0301 | 0310 | 0318 | 0326 | 5.3 | 1 | 2 | 2 | 3 | 4 |
| 84.7 | 0326 | 0334 | 0343 | 0351 | 0359 | 0367 | 0376 | 0384 | 0392 | 0401 | 0409 | 5.2 | 1 | 2 | 2 | 3 | 4 |
| 84.8 | 0409 | 0418 | 0426 | 0435 | 0443 | 0451 | 0460 | 0468 | 0477 | 0485 | 0494 | 5.1 | 1 | 2 | 3 | 3 | 4 |
| 84.9 | 1.0494 | 0503 | 0511 | 0520 | 0528 | 0537 | 0546 | 0554 | 0563 | 0572 | 1.0580 | 5°.0 | 1 | 2 | 3 | 3 | 4 |

| | Log Tan | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Log Cotan | Tenths of the Tabular Difference 1 2 3 4 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | |
| 85°.0 | 1.0580 | 0589 | 0598 | 0607 | 0616 | 0624 | 0633 | 0642 | 0651 | 0660 | 1.0669 | 4.9 | 1 2 3 4 4 |
| 85.1 | 0669 | 0678 | 0687 | 0695 | 0704 | 0713 | 0722 | 0731 | 0740 | 0750 | 0759 | 4.8 | 1 2 3 4 4 |
| 85.2 | 0759 | 0768 | 0777 | 0786 | 0795 | 0804 | 0814 | 0823 | 0832 | 0841 | 0850 | 4.7 | 1 2 3 4 5 |
| 85.3 | 0850 | 0860 | 0869 | 0878 | 0888 | 0897 | 0907 | 0916 | 0925 | 0935 | 0944 | 4.6 | 1 2 3 4 5 |
| 85.4 | 0944 | 0954 | 0963 | 0973 | 0982 | 0992 | 1002 | 1011 | 1021 | 1030 | 1040 | 4.5 | 1 2 3 4 5 |
| 85.5 | 1040 | 1050 | 1060 | 1069 | 1079 | 1089 | 1099 | 1109 | 1118 | 1128 | 1138 | 4.4 | 1 2 3 4 5 |
| 85.6 | 1138 | 1148 | 1158 | 1168 | 1178 | 1188 | 1198 | 1208 | 1218 | 1228 | 1238 | 4.3 | 1 2 3 4 5 |
| 85.7 | 1238 | 1249 | 1259 | 1269 | 1279 | 1289 | 1300 | 1310 | 1320 | 1331 | 1341 | 4.2 | 1 2 3 4 5 |
| 85.8 | 1341 | 1351 | 1362 | 1372 | 1383 | 1393 | 1404 | 1414 | 1425 | 1435 | 1446 | 4.1 | 1 2 3 4 5 |
| 85.9 | 1446 | 1457 | 1467 | 1478 | 1489 | 1499 | 1510 | 1521 | 1532 | 1543 | 1.1554 | 4°.0 | 1 2 3 4 5 |
| 86°.0 | 1.1554 | 1564 | 1575 | 1586 | 1597 | 1608 | 1619 | 1630 | 1642 | 1653 | 1664 | 3.9 | 1 2 3 4 6 |
| 86.1 | 1664 | 1675 | 1686 | 1698 | 1709 | 1720 | 1731 | 1743 | 1754 | 1766 | 1777 | 3.8 | 1 2 3 5 6 |
| 86.2 | 1777 | 1788 | 1800 | 1812 | 1823 | 1835 | 1846 | 1858 | 1870 | 1881 | 1893 | 3.7 | 1 2 3 5 6 |
| 86.3 | 1893 | 1905 | 1917 | 1929 | 1941 | 1952 | 1964 | 1976 | 1988 | 2000 | 2012 | 3.6 | 1 2 4 5 6 |
| 86.4 | 2012 | 2025 | 2037 | 2049 | 2061 | 2073 | 2086 | 2098 | 2110 | 2123 | 2135 | 3.5 | 1 2 4 5 6 |
| 86.5 | 2135 | 2148 | 2160 | 2173 | 2185 | 2198 | 2210 | 2223 | 2236 | 2249 | 2261 | 3.4 | 1 3 4 5 6 |
| 86.6 | 2261 | 2274 | 2287 | 2300 | 2313 | 2326 | 2339 | 2352 | 2365 | 2378 | 2391 | 3.3 | 1 3 4 5 6 |
| 86.7 | 2391 | 2404 | 2418 | 2431 | 2444 | 2458 | 2471 | 2485 | 2498 | 2512 | 2525 | 3.2 | 1 3 4 5 7 |
| 86.8 | 2525 | 2539 | 2552 | 2566 | 2580 | 2594 | 2608 | 2621 | 2635 | 2649 | 2663 | 3.1 | 1 3 4 6 7 |
| 86.9 | 2663 | 2677 | 2692 | 2706 | 2720 | 2734 | 2748 | 2763 | 2777 | 2792 | 1.2806 | 3°.0 | 1 3 4 6 7 |
| 87°.0 | 1.2806 | 2821 | 2835 | 2850 | 2864 | 2879 | 2894 | 2909 | 2924 | 2939 | 2954 | 2.9 | 1 3 4 6 7 |
| 87.1 | 2954 | 2969 | 2984 | 2999 | 3014 | 3029 | 3044 | 3060 | 3075 | 3091 | 3106 | 2.8 | 2 3 5 6 8 |
| 87.2 | 3106 | 3122 | 3137 | 3153 | 3169 | 3185 | 3200 | 3216 | 3232 | 3248 | 3264 | 2.7 | 2 3 5 6 8 |
| 87.3 | 3264 | 3281 | 3297 | 3313 | 3329 | 3346 | 3362 | 3379 | 3395 | 3412 | 3429 | 2.6 | 2 3 5 7 8 |
| 87.4 | 3429 | 3445 | 3462 | 3479 | 3496 | 3513 | 3530 | 3547 | 3564 | 3582 | 3599 | 2.5 | 2 3 5 7 9 |
| 87.5 | 3599 | 3616 | 3634 | 3652 | 3669 | 3687 | 3705 | 3723 | 3740 | 3758 | 3777 | 2.4 | 2 4 5 7 9 |
| 87.6 | 3777 | 3795 | 3813 | 3831 | 3850 | 3868 | 3887 | 3905 | 3924 | 3943 | 3962 | 2.3 | 2 4 6 7 9 |
| 87.7 | 3962 | 3981 | 4000 | 4019 | 4038 | 4057 | 4077 | 4096 | 4116 | 4135 | 4155 | 2.2 | 2 4 6 8 10 |
| 87.8 | 4155 | 4175 | 4195 | 4215 | 4235 | 4255 | 4275 | 4295 | 4316 | 4336 | 4357 | 2.1 | 2 4 6 8 10 |
| 87.9 | 4357 | 4378 | 4399 | 4420 | 4441 | 4462 | 4483 | 4504 | 4526 | 4547 | 1.4569 | 2°.0 | 2 4 6 8 11 |
| 88°.0 | 1.4569 | 4591 | 4613 | 4635 | 4657 | 4679 | 4702 | 4724 | 4747 | 4769 | 4792 | 1.9 | 2 4 7 9 11 |
| 88.1 | 4792 | 4815 | 4838 | 4861 | 4885 | 4908 | 4932 | 4955 | 4979 | 5003 | 5027 | 1.8 | 2 5 7 9 12 |
| 88.2 | 5027 | 5051 | 5076 | 5100 | 5125 | 5149 | 5174 | 5199 | 5225 | 5250 | 5275 | 1.7 | 2 5 7 10 12 |
| 88.3 | 5275 | 5301 | 5327 | 5353 | 5379 | 5405 | 5432 | 5458 | 5485 | 5512 | 5539 | 1.6 | 3 5 8 11 13 |
| 88.4 | 5539 | 5566 | 5594 | 5621 | 5649 | 5677 | 5705 | 5733 | 5762 | 5790 | 5819 | 1.5 | 3 6 8 11 14 |
| 88.5 | 5819 | 5848 | 5878 | 5907 | 5937 | 5967 | 5997 | 6027 | 6057 | 6088 | 6119 | 1.4 | 3 6 9 12 15 |
| 88.6 | 6119 | 6150 | 6182 | 6213 | 6245 | 6277 | 6309 | 6342 | 6375 | 6408 | 6441 | 1.3 | 3 6 10 13 16 |
| 88.7 | 6441 | 6475 | 6508 | 6542 | 6577 | 6611 | 6646 | 6682 | 6717 | 6753 | 6789 | 1.2 | 3 7 10 14 17 |
| 88.8 | 6789 | 6825 | 6862 | 6899 | 6936 | 6974 | 7012 | 7050 | 7088 | 7127 | 7167 | 1.1 | 4 8 11 15 19 |
| 88.9 | 7167 | 7206 | 7246 | 7287 | 7328 | 7369 | 7410 | 7452 | 7495 | 7538 | 1.7581 | 1°.0 | |
| 89°.0 | 1.7581 | 7624 | 7669 | 7713 | 7758 | 7804 | 7850 | 7896 | 7943 | 7990 | 8038 | 0.9 | |
| 89.1 | 8038 | 8087 | 8136 | 8186 | 8236 | 8287 | 8338 | 8390 | 8443 | 8496 | 8550 | 0.8 | |
| 89.2 | 8550 | 8605 | 8660 | 8716 | 8773 | 8830 | 8889 | 8948 | 9008 | 9068 | 9130 | 0.7 | |
| 89.3 | 9130 | 9193 | 9256 | 9320 | 9386 | 9452 | 9519 | 9588 | 9657 | 9728 | 1.9800 | 0.6 | |
| 89.4 | 1.9800 | 9873 | 9947 | 0022 | 0099 | 0177 | 0257 | 0338 | 0421 | 0505 | 2.0591 | 0.5 | |
| 89.5 | 2.0591 | 0679 | 0769 | 0860 | 0954 | 1049 | 1147 | 1246 | 1349 | 1453 | 1561 | 0.4 | |
| 89.6 | 1561 | 1671 | 1783 | 1899 | 2018 | 2140 | 2266 | 2396 | 2530 | 2668 | 2810 | 0.3 | |
| 89.7 | 2810 | 2957 | 3110 | 3268 | 3431 | 3602 | 3779 | 3964 | 4157 | 4359 | 4571 | 0.2 | |
| 89.8 | 4571 | 4794 | 5028 | 5277 | 5540 | 5820 | 6120 | 6442 | 6789 | 7167 | 2.7581 | 0.1 | |
| 89.9 | 2.7581 | 8039 | 8550 | 9130 | 9800 | 3.0592 | 1561 | 2810 | 4571 | 7581 | ∞ | 0°.0 | |

To avoid interpolation in the last eleven lines, use note.*

(Ordinary Interpolation would not be accurate in the last three lines.)

* When $x$ is between 88°.9 and 90° log tan $x$ = −log rad (90°−$x$)

[See page 28]



* When $x$ is between 0° and 1°.1 log ctn $x$ = −log rad $x$

These two pages give the common logarithms of "rad $x$" for angles $x$ between 1° and 10°. Moving the decimal point $n$ places to the right (or left) in the angle is equivalent to adding $n$ (or $-n$) to the logarithm. Thus, log rad 0°.0002778 = $\bar{3}$.6856 − 4 = 0.6856 − 6.

The abbreviation rad $x$ means the radian measure of $x$, or the ratio of arc to radius.

| For angles $x$ near 0° or 90° : — | When $x$ is between 0° and 1°.1 | When $x$ is between 88°.9 and 90° |
|---|---|---|
| | log sin $x$ = log rad $x$ | log cos $x$ = log rad (90° − $x$°) |
| | log tan $x$ = log rad $x$ | log ctn $x$ = log rad (90° − $x$°) |
| | log ctn $x$ = −log rad $x$ | log tan $x$ = −log rad (90° − $x$°) |

## Log Rad

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1°.0 | $\bar{2}$.2419 | 2462 | 2505 | 2547 | 2589 | 2631 | 2672 | 2713 | 2753 | 2793 | $\bar{2}$.2833 | 4 | 8 | 12 | 17 | 21 |
| .1 | 2833 | 2872 | 2911 | 2950 | 2988 | 3026 | 3063 | 3101 | 3138 | 3174 | 3211 | 4 | 8 | 11 | 15 | 19 |
| .2 | 3211 | 3247 | 3282 | 3318 | 3353 | 3388 | 3422 | 3457 | 3491 | 3525 | 3558 | 3 | 7 | 10 | 14 | 17 |
| .3 | 3558 | 3591 | 3625 | 3657 | 3690 | 3722 | 3754 | 3786 | 3818 | 3849 | 3880 | 3 | 6 | 10 | 13 | 16 |
| .4 | 3880 | 3911 | 3942 | 3972 | 4002 | 4032 | 4062 | 4092 | 4121 | 4151 | 4180 | 3 | 6 | 9 | 12 | 15 |
| 1°.5 | $\bar{2}$.4180 | 4209 | 4237 | 4266 | 4294 | 4322 | 4350 | 4378 | 4405 | 4433 | $\bar{2}$.4460 | 3 | 6 | 8 | 11 | 14 |
| .6 | 4460 | 4487 | 4514 | 4541 | 4567 | 4594 | 4620 | 4646 | 4672 | 4698 | 4723 | 3 | 5 | 8 | 11 | 13 |
| .7 | 4723 | 4749 | 4774 | 4799 | 4824 | 4849 | 4874 | 4899 | 4923 | 4947 | 4971 | 2 | 5 | 7 | 10 | 12 |
| .8 | 4971 | 4996 | 5019 | 5043 | 5067 | 5090 | 5114 | 5137 | 5160 | 5183 | 5206 | 2 | 5 | 7 | 9 | 12 |
| .9 | 5206 | 5229 | 5252 | 5274 | 5297 | 5319 | 5341 | 5363 | 5385 | 5407 | 5429 | 2 | 4 | 7 | 9 | 11 |
| 2°.0 | $\bar{2}$.5429 | 5451 | 5472 | 5494 | 5515 | 5536 | 5557 | 5578 | 5599 | 5620 | $\bar{2}$.5641 | 2 | 4 | 6 | 8 | 11 |
| .1 | 5641 | 5662 | 5682 | 5703 | 5723 | 5743 | 5763 | 5783 | 5803 | 5823 | 5843 | 2 | 4 | 6 | 8 | 10 |
| .2 | 5843 | 5863 | 5882 | 5902 | 5921 | 5941 | 5960 | 5979 | 5998 | 6017 | 6036 | 2 | 4 | 6 | 8 | 10 |
| .3 | 6036 | 6055 | 6074 | 6092 | 6111 | 6129 | 6148 | 6166 | 6185 | 6203 | 6221 | 2 | 4 | 6 | 7 | 9 |
| .4 | 6221 | 6239 | 6257 | 6275 | 6293 | 6310 | 6328 | 6346 | 6363 | 6381 | 6398 | 2 | 4 | 5 | 7 | 9 |
| 2°.5 | $\bar{2}$.6398 | 6416 | 6433 | 6450 | 6467 | 6484 | 6501 | 6518 | 6535 | 6552 | $\bar{2}$.6569 | 2 | 3 | 5 | 7 | 9 |
| .6 | 6569 | 6585 | 6602 | 6618 | 6635 | 6651 | 6668 | 6684 | 6700 | 6716 | 6732 | 2 | 3 | 5 | 7 | 8 |
| .7 | 6732 | 6748 | 6764 | 6780 | 6796 | 6812 | 6828 | 6844 | 6859 | 6875 | 6890 | 2 | 3 | 5 | 6 | 8 |
| .8 | 6890 | 6906 | 6921 | 6937 | 6952 | 6967 | 6982 | 6998 | 7013 | 7028 | 7043 | 2 | 3 | 5 | 6 | 8 |
| .9 | 7043 | 7058 | 7073 | 7087 | 7102 | 7117 | 7132 | 7146 | 7161 | 7175 | 7190 | 1 | 3 | 4 | 6 | 7 |
| 3°.0 | $\bar{2}$.7190 | 7204 | 7219 | 7233 | 7248 | 7262 | 7276 | 7290 | 7304 | 7318 | $\bar{2}$.7332 | 1 | 3 | 4 | 6 | 7 |
| .1 | 7332 | 7346 | 7360 | 7374 | 7388 | 7402 | 7416 | 7429 | 7443 | 7457 | 7470 | 1 | 3 | 4 | 6 | 7 |
| .2 | 7470 | 7484 | 7497 | 7511 | 7524 | 7538 | 7551 | 7564 | 7578 | 7591 | 7604 | 1 | 3 | 4 | 5 | 7 |
| .3 | 7604 | 7617 | 7630 | 7643 | 7656 | 7669 | 7682 | 7695 | 7708 | 7721 | 7734 | 1 | 3 | 4 | 5 | 6 |
| .4 | 7734 | 7746 | 7759 | 7772 | 7784 | 7797 | 7810 | 7822 | 7835 | 7847 | 7859 | 1 | 3 | 4 | 5 | 6 |
| 3°.5 | $\bar{2}$.7859 | 7872 | 7884 | 7897 | 7909 | 7921 | 7933 | 7945 | 7958 | 7970 | $\bar{2}$.7982 | 1 | 2 | 4 | 5 | 6 |
| .6 | 7982 | 7994 | 8006 | 8018 | 8030 | 8042 | 8054 | 8065 | 8077 | 8089 | 8101 | 1 | 2 | 4 | 5 | 6 |
| .7 | 8101 | 8113 | 8124 | 8136 | 8147 | 8159 | 8171 | 8182 | 8194 | 8205 | 8217 | 1 | 2 | 3 | 5 | 6 |
| .8 | 8217 | 8228 | 8239 | 8251 | 8262 | 8273 | 8285 | 8296 | 8307 | 8318 | 8329 | 1 | 2 | 3 | 5 | 6 |
| .9 | 8329 | 8341 | 8352 | 8363 | 8374 | 8385 | 8396 | 8407 | 8418 | 8429 | 8439 | 1 | 2 | 3 | 4 | 5 |
| 4°.0 | $\bar{2}$.8439 | 8450 | 8461 | 8472 | 8483 | 8493 | 8504 | 8515 | 8525 | 8536 | $\bar{2}$.8547 | 1 | 2 | 3 | 4 | 5 |
| .1 | 8547 | 8557 | 8568 | 8578 | 8589 | 8599 | 8610 | 8620 | 8631 | 8641 | 8651 | 1 | 2 | 3 | 4 | 5 |
| .2 | 8651 | 8662 | 8672 | 8682 | 8692 | 8703 | 8713 | 8723 | 8733 | 8743 | 8753 | 1 | 2 | 3 | 4 | 5 |
| .3 | 8753 | 8764 | 8774 | 8784 | 8794 | 8804 | 8814 | 8824 | 8834 | 8843 | 8853 | 1 | 2 | 3 | 4 | 5 |
| .4 | 8853 | 8863 | 8873 | 8883 | 8893 | 8902 | 8912 | 8922 | 8932 | 8941 | 8951 | 1 | 2 | 3 | 4 | 5 |
| 4°.5 | $\bar{2}$.8951 | 8961 | 8970 | 8980 | 8989 | 8999 | 9008 | 9018 | 9027 | 9037 | $\bar{2}$.9046 | 1 | 2 | 3 | 4 | 5 |
| .6 | 9046 | 9056 | 9065 | 9075 | 9084 | 9093 | 9103 | 9112 | 9121 | 9131 | 9140 | 1 | 2 | 3 | 4 | 5 |
| .7 | 9140 | 9149 | 9158 | 9167 | 9177 | 9186 | 9195 | 9204 | 9213 | 9222 | 9231 | 1 | 2 | 3 | 4 | 5 |
| .8 | 9231 | 9240 | 9249 | 9258 | 9267 | 9276 | 9285 | 9294 | 9303 | 9312 | 9321 | 1 | 2 | 3 | 4 | 4 |
| .9 | 9321 | 9330 | 9338 | 9347 | 9356 | 9365 | 9374 | 9382 | 9391 | 9400 | 9408 | 1 | 2 | 3 | 4 | 4 |

NOTE: log rad $x$ = log (number of degrees in $x$) + 0.2419 − 2.

# Log Rad

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Tenths of the Tabular Difference 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5°.0 | $\bar{2}$.9408 | 9417 | 9426 | 9434 | 9443 | 9452 | 9460 | 9469 | 9477 | 9486 | $\bar{2}$.9494 | 1 | 2 | 3 | 3 | 4 |
| .1 | 9494 | 9503 | 9511 | 9520 | 9528 | 9537 | 9545 | 9554 | 9562 | 9570 | 9579 | 1 | 2 | 3 | 3 | 4 |
| .2 | 9579 | 9587 | 9595 | 9604 | 9612 | 9620 | 9629 | 9637 | 9645 | 9653 | 9662 | 1 | 2 | 2 | 3 | 4 |
| .3 | 9662 | 9670 | 9678 | 9686 | 9694 | 9702 | 9710 | 9719 | 9727 | 9735 | 9743 | 1 | 2 | 2 | 3 | 4 |
| .4 | 9743 | 9751 | 9759 | 9767 | 9775 | 9783 | 9791 | 9799 | 9807 | 9814 | 9822 | 1 | 2 | 2 | 3 | 4 |
| 5°.5 | $\bar{2}$.9822 | 9830 | 9838 | 9846 | 9854 | 9862 | 9870 | 9877 | 9885 | 9893 | 9901 | 1 | 2 | 2 | 3 | 4 |
| .6 | 9901 | 9908 | 9916 | 9924 | 9932 | 9939 | 9947 | 9955 | 9962 | 9970 | $\bar{2}$.9978 | 1 | 2 | 2 | 3 | 4 |
| .7 | $\bar{2}$.9978 | 9985 | 9993 | 0000 | 0008 | 0015 | 0023 | 0031 | 0038 | 0046 | $\bar{1}$.0053 | 1 | 2 | 2 | 3 | 4 |
| .8 | $\bar{1}$.0053 | 0061 | 0068 | 0075 | 0083 | 0090 | 0098 | 0105 | 0113 | 0120 | 0127 | 1 | 1 | 2 | 3 | 4 |
| .9 | 0127 | 0135 | 0142 | 0149 | 0157 | 0164 | 0171 | 0179 | 0186 | 0193 | 0200 | 1 | 1 | 2 | 3 | 4 |
| 6°.0 | $\bar{1}$.0200 | 0208 | 0215 | 0222 | 0229 | 0236 | 0244 | 0251 | 0258 | 0265 | $\bar{1}$.0272 | 1 | 1 | 2 | 3 | 4 |
| .1 | 0272 | 0279 | 0286 | 0293 | 0300 | 0308 | 0315 | 0322 | 0329 | 0336 | 0343 | 1 | 1 | 2 | 3 | 4 |
| .2 | 0343 | 0350 | 0357 | 0364 | 0371 | 0378 | 0385 | 0391 | 0398 | 0405 | 0412 | 1 | 1 | 2 | 3 | 3 |
| .3 | 0412 | 0419 | 0426 | 0433 | 0440 | 0447 | 0453 | 0460 | 0467 | 0474 | 0481 | 1 | 1 | 2 | 3 | 3 |
| .4 | 0481 | 0487 | 0494 | 0501 | 0508 | 0514 | 0521 | 0528 | 0535 | 0541 | 0548 | 1 | 1 | 2 | 3 | 3 |
| 6°.5 | $\bar{1}$.0548 | 0555 | 0561 | 0568 | 0575 | 0581 | 0588 | 0594 | 0601 | 0608 | $\bar{1}$.0614 | 1 | 1 | 2 | 3 | 3 |
| .6 | 0614 | 0621 | 0627 | 0634 | 0640 | 0647 | 0654 | 0660 | 0667 | 0673 | 0680 | 1 | 1 | 2 | 3 | 3 |
| .7 | 0680 | 0686 | 0692 | 0699 | 0705 | 0712 | 0718 | 0725 | 0731 | 0737 | 0744 | 1 | 1 | 2 | 3 | 3 |
| .8 | 0744 | 0750 | 0757 | 0763 | 0769 | 0776 | 0782 | 0788 | 0795 | 0801 | 0807 | 1 | 1 | 2 | 3 | 3 |
| .9 | 0807 | 0814 | 0820 | 0826 | 0832 | 0839 | 0845 | 0851 | 0857 | 0864 | 0870 | 1 | 1 | 2 | 2 | 3 |
| 7°.0 | $\bar{1}$.0870 | 0876 | 0882 | 0888 | 0895 | 0901 | 0907 | 0913 | 0919 | 0925 | $\bar{1}$.0931 | 1 | 1 | 2 | 2 | 3 |
| .1 | 0931 | 0937 | 0944 | 0950 | 0956 | 0962 | 0968 | 0974 | 0980 | 0986 | 0992 | 1 | 1 | 2 | 2 | 3 |
| .2 | 0992 | 0998 | 1004 | 1010 | 1016 | 1022 | 1028 | 1034 | 1040 | 1046 | 1052 | 1 | 1 | 2 | 2 | 3 |
| .3 | 1052 | 1058 | 1064 | 1070 | 1076 | 1082 | 1088 | 1093 | 1099 | 1105 | 1111 | 1 | 1 | 2 | 2 | 3 |
| .4 | 1111 | 1117 | 1123 | 1129 | 1135 | 1140 | 1146 | 1152 | 1158 | 1164 | 1169 | 1 | 1 | 2 | 2 | 3 |
| 7°.5 | $\bar{1}$.1169 | 1175 | 1181 | 1187 | 1192 | 1198 | 1204 | 1210 | 1215 | 1221 | $\bar{1}$.1227 | 1 | 1 | 2 | 2 | 3 |
| .6 | 1227 | 1233 | 1238 | 1244 | 1250 | 1255 | 1261 | 1267 | 1272 | 1278 | 1284 | 1 | 1 | 2 | 2 | 3 |
| .7 | 1284 | 1289 | 1295 | 1301 | 1306 | 1312 | 1317 | 1323 | 1329 | 1334 | 1340 | 1 | 1 | 2 | 2 | 3 |
| .8 | 1340 | 1345 | 1351 | 1356 | 1362 | 1367 | 1373 | 1379 | 1384 | 1390 | 1395 | 1 | 1 | 2 | 2 | 3 |
| .9 | 1395 | 1401 | 1406 | 1412 | 1417 | 1422 | 1428 | 1433 | 1439 | 1444 | 1450 | 1 | 1 | 2 | 2 | 3 |
| 8°.0 | $\bar{1}$.1450 | 1455 | 1461 | 1466 | 1471 | 1477 | 1482 | 1488 | 1493 | 1498 | $\bar{1}$.1504 | 1 | 1 | 2 | 2 | 3 |
| .1 | 1504 | 1509 | 1514 | 1520 | 1525 | 1530 | 1536 | 1541 | 1546 | 1552 | 1557 | 1 | 1 | 2 | 2 | 3 |
| .2 | 1557 | 1562 | 1567 | 1573 | 1578 | 1583 | 1589 | 1594 | 1599 | 1604 | 1610 | 1 | 1 | 2 | 2 | 3 |
| .3 | 1610 | 1615 | 1620 | 1625 | 1630 | 1636 | 1641 | 1646 | 1651 | 1656 | 1662 | 1 | 1 | 2 | 2 | 3 |
| .4 | 1662 | 1667 | 1672 | 1677 | 1682 | 1687 | 1692 | 1698 | 1703 | 1708 | 1713 | 1 | 1 | 2 | 2 | 3 |
| 8°.5 | $\bar{1}$.1713 | 1718 | 1723 | 1728 | 1733 | 1738 | 1744 | 1749 | 1754 | 1759 | $\bar{1}$.1764 | 1 | 1 | 2 | 2 | 3 |
| .6 | 1764 | 1769 | 1774 | 1779 | 1784 | 1789 | 1794 | 1799 | 1804 | 1809 | 1814 | 1 | 1 | 2 | 2 | 3 |
| .7 | 1814 | 1819 | 1824 | 1829 | 1834 | 1839 | 1844 | 1849 | 1854 | 1859 | 1864 | 0 | 1 | 1 | 2 | 2 |
| .8 | 1864 | 1869 | 1873 | 1878 | 1883 | 1888 | 1893 | 1898 | 1903 | 1908 | 1913 | 0 | 1 | 1 | 2 | 2 |
| .9 | 1913 | 1918 | 1922 | 1927 | 1932 | 1937 | 1942 | 1947 | 1952 | 1956 | 1961 | 0 | 1 | 1 | 2 | 2 |
| 9°.0 | $\bar{1}$.1961 | 1966 | 1971 | 1976 | 1980 | 1985 | 1990 | 1995 | 2000 | 2004 | $\bar{1}$.2009 | 0 | 1 | 1 | 2 | 2 |
| .1 | 2009 | 2014 | 2019 | 2023 | 2028 | 2033 | 2038 | 2042 | 2047 | 2052 | 2057 | 0 | 1 | 1 | 2 | 2 |
| .2 | 2057 | 2061 | 2066 | 2071 | 2075 | 2080 | 2085 | 2090 | 2094 | 2099 | 2104 | 0 | 1 | 1 | 2 | 2 |
| .3 | 2104 | 2108 | 2113 | 2118 | 2122 | 2127 | 2132 | 2136 | 2141 | 2145 | 2150 | 0 | 1 | 1 | 2 | 2 |
| .4 | 2150 | 2155 | 2159 | 2164 | 2168 | 2173 | 2178 | 2182 | 2187 | 2191 | 2196 | 0 | 1 | 1 | 2 | 2 |
| 9°.5 | $\bar{1}$.2196 | 2201 | 2205 | 2210 | 2214 | 2219 | 2223 | 2228 | 2232 | 2237 | $\bar{1}$.2241 | 0 | 1 | 1 | 2 | 2 |
| .6 | 2241 | 2246 | 2251 | 2255 | 2260 | 2264 | 2269 | 2273 | 2278 | 2282 | 2286 | 0 | 1 | 1 | 2 | 2 |
| .7 | 2286 | 2291 | 2295 | 2300 | 2304 | 2309 | 2313 | 2318 | 2322 | 2327 | 2331 | 0 | 1 | 1 | 2 | 2 |
| .8 | 2331 | 2335 | 2340 | 2344 | 2349 | 2353 | 2358 | 2362 | 2366 | 2371 | 2375 | 0 | 1 | 1 | 2 | 2 |
| .9 | 2375 | 2380 | 2384 | 2388 | 2393 | 2397 | 2401 | 2406 | 2410 | 2414 | 2419 | 0 | 1 | 1 | 2 | 2 |

# Exponentials

| $n$ | $e^n$ | Diff. | $n$ | $e^n$ | Diff. | $n$ | $e^n$ | $n$ | $e^{-n}$ | Diff. | $n$ | $e^{-n}$ | Diff. | $n$ | $e^{-n}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 1.000 | 10 | 0.50 | 1.649 | 16 | 1.0 | 2.718 * | 0.00 | 1.000 | $-10$ | 0.50 | .607 | $-7$ | 1.0 | .368 * |
| .01 | 1.010 | 10 | .51 | 1.665 | 17 | .1 | 3.004 | .01 | 0.990 | $-10$ | .51 | .600 | $-5$ | .1 | .333 |
| .02 | 1.020 | 10 | .52 | 1.682 | 17 | .2 | 3.320 | .02 | .980 | $-10$ | .52 | .595 | $-6$ | .2 | .301 |
| .03 | 1.030 | 11 | .53 | 1.699 | 17 | .3 | 3.669 | .03 | .970 | $-9$ | .53 | .589 | $-6$ | .3 | .273 |
| .04 | 1.041 | 10 | .54 | 1.716 | 17 | .4 | 4.055 | .04 | .961 | $-10$ | .54 | .583 | $-6$ | .4 | .247 |
| 0.05 | 1.051 | 11 | 0.55 | 1.733 | 18 | 1.5 | 4.482 | 0.05 | .951 | $-9$ | 0.55 | .577 | $-6$ | 1.5 | .223 |
| .06 | 1.062 | 11 | .56 | 1.751 | 17 | .6 | 4.953 | .06 | .942 | $-10$ | .56 | .571 | $-5$ | .6 | .202 |
| .07 | 1.073 | 10 | .57 | 1.768 | 18 | .7 | 5.474 | .07 | .932 | $-9$ | .57 | .566 | $-6$ | .7 | .183 |
| .08 | 1.083 | 11 | .58 | 1.786 | 18 | .8 | 6.050 | .08 | .923 | $-9$ | .58 | .560 | $-6$ | .8 | .165 |
| .09 | 1.094 | 11 | .59 | 1.804 | 18 | .9 | 6.686 | .09 | .914 | $-9$ | .59 | .554 | $-5$ | .9 | .150 |
| 0.10 | 1.105 | 11 | 0.60 | 1.822 | 18 | 2.0 | 7.389 | 0.10 | .905 | $-9$ | 0.60 | .549 | $-6$ | 2.0 | .135 |
| .11 | 1.116 | 11 | .61 | 1.840 | 19 | .1 | 8.166 | .11 | .896 | $-9$ | .61 | .543 | $-5$ | .1 | .122 |
| .12 | 1.127 | 12 | .62 | 1.859 | 19 | .2 | 9.025 | .12 | .887 | $-9$ | .62 | .538 | $-5$ | .2 | .111 |
| .13 | 1.139 | 11 | .63 | 1.878 | 18 | .3 | 9.974 | .13 | .878 | $-9$ | .63 | .533 | $-6$ | .3 | .100 |
| .14 | 1.150 | 12 | .64 | 1.896 | 20 | .4 | 11.02 | .14 | .869 | $-8$ | .64 | .527 | $-5$ | .4 | .0907 |
| 0.15 | 1.162 | 12 | 0.65 | 1.916 | 19 | 2.5 | 12.18 | 0.15 | .861 | $-9$ | 0.65 | .522 | $-5$ | 2.5 | .0821 |
| .16 | 1.174 | 11 | .66 | 1.935 | 19 | .6 | 13.46 | .16 | .852 | $-8$ | .66 | .517 | $-5$ | .6 | .0743 |
| .17 | 1.185 | 12 | .67 | 1.954 | 20 | .7 | 14.88 | .17 | .844 | $-9$ | .67 | .512 | $-5$ | .7 | .0672 |
| .18 | 1.197 | 12 | .68 | 1.974 | 20 | .8 | 16.44 | .18 | .835 | $-8$ | .68 | .507 | $-5$ | .8 | .0608 |
| .19 | 1.209 | 12 | .69 | 1.994 | 20 | .9 | 18.17 | .19 | .827 | $-8$ | .69 | .502 | $-5$ | .9 | .0550 |
| 0.20 | 1.221 | 13 | 0.70 | 2.014 | 20 | 3.0 | 20.09 | 0.20 | .819 | $-8$ | 0.70 | .497 | $-5$ | 3.0 | .0498 |
| .21 | 1.234 | 12 | .71 | 2.034 | 20 | .1 | 22.20 | .21 | .811 | $-8$ | .71 | .492 | $-5$ | .1 | .0450 |
| .22 | 1.246 | 13 | .72 | 2.054 | 21 | .2 | 24.53 | .22 | .803 | $-8$ | .72 | .487 | $-5$ | .2 | .0408 |
| .23 | 1.259 | 12 | .73 | 2.075 | 21 | .3 | 27.11 | .23 | .795 | $-8$ | .73 | .482 | $-5$ | .3 | .0369 |
| .24 | 1.271 | 13 | .74 | 2.096 | 21 | .4 | 29.96 | .24 | .787 | $-8$ | .74 | .477 | $-5$ | .4 | .0334 |
| 0.25 | 1.284 | 13 | 0.75 | 2.117 | 21 | 3.5 | 33.12 | 0.25 | .779 | $-8$ | 0.75 | .472 | $-4$ | 3.5 | .0302 |
| .26 | 1.297 | 13 | .76 | 2.138 | 22 | .6 | 36.60 | .26 | .771 | $-8$ | .76 | .468 | $-5$ | .6 | .0273 |
| .27 | 1.310 | 13 | .77 | 2.160 | 21 | .7 | 40.45 | .27 | .763 | $-7$ | .77 | .463 | $-5$ | .7 | .0247 |
| .28 | 1.323 | 13 | .78 | 2.181 | 22 | .8 | 44.70 | .28 | .756 | $-8$ | .78 | .458 | $-4$ | .8 | .0224 |
| .29 | 1.336 | 14 | .79 | 2.203 | 23 | .9 | 49.40 | .29 | .748 | $-7$ | .79 | .454 | $-5$ | .9 | .0202 |
| 0.30 | 1.350 | 13 | 0.80 | 2.226 | 22 | 4.0 | 54.60 | 0.30 | .741 | $-8$ | 0.80 | .449 | $-4$ | 4.0 | .0183 |
| .31 | 1.363 | 14 | .81 | 2.248 | 22 | .1 | 60.34 | .31 | .733 | $-7$ | .81 | .445 | $-5$ | .1 | .0166 |
| .32 | 1.377 | 14 | .82 | 2.270 | 23 | .2 | 66.69 | .32 | .726 | $-7$ | .82 | .440 | $-4$ | .2 | .0150 |
| .33 | 1.391 | 14 | .83 | 2.293 | 23 | .3 | 73.70 | .33 | .719 | $-7$ | .83 | .436 | $-4$ | .3 | .0136 |
| .34 | 1.405 | 14 | .84 | 2.316 | 24 | .4 | 81.45 | .34 | .712 | $-7$ | .84 | .432 | $-4$ | .4 | .0123 |
| 0.35 | 1.419 | 14 | 0.85 | 2.340 | 23 | 4.5 | 90.02 | 0.35 | .705 | $-7$ | 0.85 | .427 | $-4$ | 4.5 | .0111 |
| .36 | 1.433 | 15 | .86 | 2.363 | 24 | | | .36 | .698 | $-7$ | .86 | .423 | $-4$ | | |
| .37 | 1.448 | 14 | .87 | 2.387 | 24 | 5. | 148.4 | .37 | .691 | $-7$ | .87 | .419 | $-4$ | 5. | .00674 |
| .38 | 1.462 | 15 | .88 | 2.411 | 24 | 6. | 403.4 | .38 | .684 | $-7$ | .88 | .415 | $-4$ | 6. | .00248 |
| .39 | 1.477 | 15 | .89 | 2.435 | 25 | 7. | 1097. | .39 | .677 | $-7$ | .89 | .411 | $-4$ | 7. | .000912 |
| 0.40 | 1.492 | 15 | 0.90 | 2.460 | 24 | 8. | 2981. | 0.40 | .670 | $-6$ | 0.90 | .407 | $-4$ | 8. | .000335 |
| .41 | 1.507 | 15 | .91 | 2.484 | 25 | 9. | 8103. | .41 | .664 | $-7$ | .91 | .403 | $-4$ | 9. | .000123 |
| .42 | 1.522 | 15 | .92 | 2.509 | 26 | 10. | 22026. | .42 | .657 | $-6$ | .92 | .399 | $-4$ | 10. | .000045 |
| .43 | 1.537 | 16 | .93 | 2.535 | 25 | | | .43 | .651 | $-7$ | .93 | .395 | $-4$ | | |
| .44 | 1.553 | 15 | .94 | 2.560 | 26 | $\pi/2$ | 4.810 | .44 | .644 | $-6$ | .94 | .391 | $-4$ | $\pi/2$ | .208 |
| 0.45 | 1.568 | 16 | 0.95 | 2.586 | 26 | $2\pi/2$ | 23.14 | 0.45 | .638 | $-7$ | 0.95 | .387 | $-4$ | $2\pi/2$ | .0432 |
| .46 | 1.584 | 16 | .96 | 2.612 | 26 | $3\pi/2$ | 111.3 | .46 | .631 | $-6$ | .96 | .383 | $-4$ | $3\pi/2$ | .00898 |
| .47 | 1.600 | 16 | .97 | 2.638 | 26 | $4\pi/2$ | 535.5 | .47 | .625 | $-6$ | .97 | .379 | $-4$ | $4\pi/2$ | .00187 |
| .48 | 1.616 | 16 | .98 | 2.664 | 27 | $5\pi/2$ | 2576. | .48 | .619 | $-6$ | .98 | .375 | $-3$ | $5\pi/2$ | .000388 |
| .49 | 1.632 | 16 | .99 | 2.691 | 27 | $6\pi/2$ | 12392. | .49 | .613 | $-6$ | .99 | .372 | $-4$ | $6\pi/2$ | .000081 |
| 0.50 | 1.649 | 17 | 1.00 | 2.718 | 27 | $7\pi/2$ | 59610. | 0.50 | 0.607 | | 1.00 | .368 | | $7\pi/2$ | .000017 |
| | | | | | | $8\pi/2$ | 286751. | | | | | | | $8\pi/2$ | .000003 |

* Note: Do not interpolate in third and sixth columns.

$e = 2.71828$ $\quad 1/e = 0.367879$ $\quad \log_{10} e = 0.4343$ $\quad 1/(0.4343) = 2.3026$

$\sinh x = \frac{1}{2}(e^x - e^{-x})$ $\quad \cosh x = \frac{1}{2}(e^x + e^{-x})$ $\quad \log_{10}(0.4343) = \bar{1}.6378$ $\quad \log_{10}(e^n) = n(0.4343)$

| Moving the decimal point $k$ places to the right (*or left*) in the number is equivalent to adding $k$ times 2.30259 (*or* $-k$ *times* 2.30259) to the logarithm. | k | $\log_e(10^k)$ | 5 | 11.51293 |
|---|---|---|---|---|
| | 1 | **2.30259** | 6 | 13.81551 |
| | 2 | 4.60517 | 7 | 16.11810 |
| | 3 | 6.90776 | 8 | 18.42068 |
| | 4 | 9.21034 | 9 | 20.72327 |

# $\text{Log}_e$ (Base e=2.71828+)

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Tenths of the Tabular Difference 1 2 3 4 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .1 | −2.303 | −2.207 | −2.120 | −2.040 | −1.966 | −1.897 | −1.833 | −1.772 | −1.715 | −1.661 | −1.609 | |
| .2 | −1.609 | −1.561 | −1.514 | −1.470 | −1.427 | −1.386 | −1.347 | −1.309 | −1.273 | −1.238 | −1.204 | |
| .3 | −1.204 | −1.171 | −1.139 | −1.109 | −1.079 | −1.050 | −1.022 | −0.994 | −0.968 | −0.942 | −0.916 | |
| .4 | −.9163 | −.8916 | −.8675 | −.8440 | −.8210 | −.7985 | −.7765 | −.7550 | −.7340 | −.7133 | −.6931 | |
| .5 | −.6931 | −.6733 | −.6539 | −.6349 | −.6162 | −.5978 | −.5798 | −.5621 | −.5447 | −.5276 | −.5108 | |
| .6 | −.5108 | −.4943 | −.4780 | −.4620 | −.4463 | −.4308 | −.4155 | −.4005 | −.3857 | −.3711 | −.3567 | |
| .7 | −.3567 | −.3425 | −.3285 | −.3147 | −.3011 | −.2877 | −.2744 | −.2614 | −.2485 | −.2357 | −.2231 | |
| .8 | −.2231 | −.2107 | −.1985 | −.1863 | −.1744 | −.1625 | −.1508 | −.1393 | −.1278 | −.1165 | −.1054 | |
| .9 | −.10536 | −.09431 | −.08338 | −.07257 | −.06188 | −.05129 | −.04082 | −.03046 | −.02020 | −.01005 | .00000 | |
| 1.00 | .00000 | .00100 | .00200 | .00300 | .00399 | .00499 | .00598 | .00698 | .00797 | .00896 | .00995 | 10 20 30 40 50 |
| 1.01 | .00995 | .01094 | .01193 | .01292 | .01390 | .01489 | .01587 | .01686 | .01784 | .01882 | .01980 | 10 20 30 39 49 |
| 1.02 | .01980 | .02078 | .02176 | .02274 | .02372 | .02469 | .02567 | .02664 | .02762 | .02859 | .02956 | 10 20 29 39 49 |
| 1.03 | .02956 | .03053 | .03150 | .03247 | .03343 | .03440 | .03537 | .03633 | .03730 | .03826 | .03922 | 10 19 29 39 48 |
| 1.04 | .03922 | .04018 | .04114 | .04210 | .04306 | .04402 | .04497 | .04593 | .04688 | .04784 | .04879 | 10 19 29 38 48 |
| 1.05 | .04879 | .04974 | .05069 | .05164 | .05259 | .05354 | .05449 | .05543 | .05638 | .05733 | .05827 | 9 19 28 38 47 |
| 1.06 | .05827 | .05921 | .06015 | .06110 | .06204 | .06297 | .06391 | .06485 | .06579 | .06672 | .06766 | 9 19 28 38 47 |
| 1.07 | .06766 | .06859 | .06953 | .07046 | .07139 | .07232 | .07325 | .07418 | .07511 | .07603 | .07696 | 9 19 28 37 47 |
| 1.08 | .07696 | .07789 | .07881 | .07973 | .08066 | .08158 | .08250 | .08342 | .08434 | .08526 | .08618 | 9 18 28 37 46 |
| 1.09 | .08618 | .08709 | .08801 | .08893 | .08984 | .09075 | .09167 | .09258 | .09349 | .09440 | .09531 | 9 18 27 37 46 |
| 1.1 | .0953 | .1044 | .1133 | .1222 | .1310 | .1398 | | | | | | 9 18 27 36 44 |
| | | | | | | .1398 | .1484 | .1570 | .1655 | .1740 | .1823 | 9 17 26 34 43 |
| 1.2 | .1823 | .1906 | .1989 | .2070 | .2151 | .2231 | | | | | | 8 16 24 33 41 |
| | | | | | | .2231 | .2311 | .2390 | .2469 | .2546 | .2624 | 8 16 24 31 39 |
| 1.3 | .2624 | .2700 | .2776 | .2852 | .2927 | .3001 | .3075 | .3148 | .3221 | .3293 | .3365 | 7 15 22 30 37 |
| 1.4 | .3365 | .3436 | .3507 | .3577 | .3646 | .3716 | .3784 | .3853 | .3920 | .3988 | .4055 | 7 14 21 28 34 |
| 1.5 | .4055 | .4121 | .4187 | .4253 | .4318 | .4383 | .4447 | .4511 | .4574 | .4637 | .4700 | 6 13 19 26 32 |
| 1.6 | .4700 | .4762 | .4824 | .4886 | .4947 | .5008 | .5068 | .5128 | .5188 | .5247 | .5306 | 6 12 18 24 30 |
| 1.7 | .5306 | .5365 | .5423 | .5481 | .5539 | .5596 | .5653 | .5710 | .5766 | .5822 | .5878 | 6 11 17 23 29 |
| 1.8 | .5878 | .5933 | .5988 | .6043 | .6098 | .6152 | .6206 | .6259 | .6313 | .6366 | .6419 | 5 11 16 22 27 |
| 1.9 | .6419 | .6471 | .6523 | .6575 | .6627 | .6678 | .6729 | .6780 | .6831 | .6881 | .6931 | 5 10 15 21 26 |
| 2.0 | .6931 | .6981 | .7031 | .7080 | .7129 | .7178 | .7227 | .7275 | .7324 | .7372 | .7419 | 5 10 15 20 24 |
| 2.1 | .7419 | .7467 | .7514 | .7561 | .7608 | .7655 | .7701 | .7747 | .7793 | .7839 | .7885 | 5 9 14 19 23 |
| 2.2 | .7885 | .7930 | .7975 | .8020 | .8065 | .8109 | .8154 | .8198 | .8242 | .8286 | .8329 | 4 9 13 18 22 |
| 2.3 | .8329 | .8372 | .8416 | .8459 | .8502 | .8544 | .8587 | .8629 | .8671 | .8713 | .8755 | 4 9 13 17 21 |
| 2.4 | .8755 | .8796 | .8838 | .8879 | .8920 | .8961 | .9002 | .9042 | .9083 | .9123 | .9163 | 4 8 12 16 20 |
| 2.5 | .9163 | .9203 | .9243 | .9282 | .9322 | .9361 | .9400 | .9439 | .9478 | .9517 | .9555 | 4 8 12 16 20 |
| 2.6 | .9555 | .9594 | 0.9632 | 0.9670 | 0.9708 | 0.9746 | 0.9783 | 0.9821 | 0.9858 | 0.9895 | 0.9933 | 4 8 11 15 19 |
| 2.7 | 0.9933 | 0.9969 | 1.0006 | 1.0043 | 1.0080 | 1.0116 | 1.0152 | 1.0188 | 1.0225 | 1.0260 | 1.0296 | 4 7 11 15 18 |
| 2.8 | 1.0296 | 1.0332 | 1.0367 | 1.0403 | 1.0438 | 1.0473 | 1.0508 | 1.0543 | 1.0578 | 1.0613 | 1.0647 | 4 7 11 14 18 |
| 2.9 | 1.0647 | 1.0682 | 1.0716 | 1.0750 | 1.0784 | 1.0818 | 1.0852 | 1.0886 | 1.0919 | 1.0953 | 1.0986 | 3 7 10 14 17 |
| 3. | 1.099 | 1.131 | 1.163 | 1.194 | 1.224 | 1.253 | | | | | | 3 6 9 12 15 |
| | | | | | | 1.253 | 1.281 | 1.308 | 1.335 | 1.361 | 1.386 | 3 5 8 11 13 |
| 4. | 1.386 | 1.411 | 1.435 | 1.459 | 1.482 | 1.504 | | | | | | 2 5 7 9 12 |
| | | | | | | 1.504 | 1.526 | 1.548 | 1.569 | 1.589 | 1.609 | 2 4 6 8 11 |
| 5. | 1.609 | 1.629 | 1.649 | 1.668 | 1.686 | 1.705 | 1.723 | 1.740 | 1.758 | 1.775 | 1.792 | 2 4 5 7 9 |
| 6. | 1.792 | 1.808 | 1.825 | 1.841 | 1.856 | 1.872 | 1.887 | 1.902 | 1.917 | 1.932 | 1.946 | 2 3 5 6 8 |
| 7. | 1.946 | 1.960 | 1.974 | 1.988 | 2.001 | 2.015 | 2.028 | 2.041 | 2.054 | 2.067 | 2.079 | 1 3 4 5 7 |
| 8. | 2.079 | 2.092 | 2.104 | 2.116 | 2.128 | 2.140 | 2.152 | 2.163 | 2.175 | 2.186 | 2.197 | 1 2 4 5 6 |
| 9. | 2.197 | 2.208 | 2.219 | 2.230 | 2.241 | 2.251 | 2.262 | 2.272 | 2.282 | 2.293 | 2.303 | 1 2 3 4 5 |

Range of Differences: 96—52 / 48—34 / 33—26 / 247—202 / 198—168 / 165—144 / 142—126 / 124—111 / 1105—1005

$\log_e 10 = 2.3025851$ $\log_e x = (2.3026)\log_{10} x$ (31) $\log_{10} e = 0.43429448$ $\log_{10} x = (0.4343)\log_e x$

## Radians

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0° | .0000 | 50° | 0.8727 | 30° | 0.5236= | $\pi/6$ |
| 1 | .0175 | 1 | .8901 | 45° | 0.7854= | $\pi/4$ |
| 2 | .0349 | 2 | .9076 | 60° | 1.0472= | $\pi/3$ |
| 3 | .0524 | 3 | .9250 | | | |
| 4 | .0698 | 4 | .9425 | 90° | 1.5708= | $\pi/2$ |
| 5 | .0873 | 55 | .9599 | 100 | 1.7453 | |
| 6 | .1047 | 6 | .9774 | 110 | 1.9199 | |
| 7 | .1222 | 7 | 0.9948 | 120° | 2.0944= | $2\pi/3$ |
| 8 | .1396 | 8 | 1.0123 | 130 | 2.2089 | |
| 9 | .1571 | 9 | 1.0297 | 135° | 2.3562= | $3\pi/4$ |
| 10° | .1745 | 60° | 1.0472 | 140 | 2.4435 | |
| 1 | .1920 | 1 | 1.0647 | 150° | 2.6180= | $5\pi/6$ |
| 2 | .2094 | 2 | 1.0821 | 160 | 2.7925 | |
| 3 | .2269 | 3 | 1.0996 | 170 | 2.9671 | |
| 4 | .2443 | 4 | 1.1170 | 180° | 3.1416= | $\pi$ |
| 15 | .2618 | 65 | 1.1345 | 190 | 3.3161 | |
| 6 | .2793 | 6 | 1.1519 | 200 | 3.4907 | |
| 7 | .2967 | 7 | 1.1694 | 210° | 3.6652= | $7\pi/6$ |
| 8 | .3142 | 8 | 1.1868 | 220 | 3.8397 | |
| 9 | .3316 | 9 | 1.2043 | 225° | 3.9270= | $5\pi/4$ |
| 20° | .3491 | 70° | 1.2217 | 230 | 4.0143 | |
| 1 | .3665 | 1 | 1.2392 | 240° | 4.1888= | $4\pi/3$ |
| 2 | .3840 | 2 | 1.2566 | 250 | 4.3633 | |
| 3 | .4014 | 3 | 1.2741 | 260 | 4.5379 | |
| 4 | .4189 | 4 | 1.2915 | 270° | 4.7124= | $3\pi/2$ |
| 25 | .4363 | 75 | 1.3090 | 280 | 4.8869 | |
| 6 | .4538 | 6 | 1.3265 | 290 | 5.0615 | |
| 7 | .4712 | 7 | 1.3439 | 300° | 5.2360= | $5\pi/3$ |
| 8 | .4887 | 8 | 1.3614 | 310 | 5.4105 | |
| 9 | .5061 | 9 | 1.3788 | 315° | 5.4978= | $7\pi/4$ |
| 30° | .5236 | 80° | 1.3963 | 320 | 5.5851 | |
| 1 | .5411 | 1 | 1.4137 | 330° | 5.7596= | $11\pi/6$ |
| 2 | .5585 | 2 | 1.4312 | 340 | 5.9341 | |
| 3 | .5760 | 3 | 1.4486 | 350 | 6.1087 | |
| 4 | .5934 | 4 | 1.4661 | 360° | 6.2832= | $2\pi$ |
| 35 | .6109 | 85 | 1.4835 | | | |
| 6 | .6283 | 6 | 1.5010 | | | |
| 7 | .6458 | 7 | 1.5184 | | | |
| 8 | .6632 | 8 | 1.5359 | | | |
| 9 | .6807 | 9 | 1.5533 | | | |
| 40° | .6981 | 90° | 1.5708 | | | |
| 1 | .7156 | 1 | 1.5882 | | | |
| 2 | .7330 | 2 | 1.6057 | | | |
| 3 | .7505 | 3 | 1.6232 | | | |
| 4 | .7679 | 4 | 1.6406 | | | |
| 45 | .7854 | 95 | 1.6581 | | | |
| 6 | .8029 | 6 | 1.6755 | | | |
| 7 | .8203 | 7 | 1.6930 | | | |
| 8 | .8378 | 8 | 1.7104 | | | |
| 9 | .8552 | 9 | 1.7279 | | | |
| 50° | .8727 | 100° | 1.7453 | | | |

| | | | |
|---|---|---|---|
| 0°.1 | .0017 | 0°.01 | .0002 |
| .2 | .0035 | .02 | .0003 |
| .3 | .0052 | .03 | .0005 |
| .4 | .0070 | .04 | .0007 |
| .5 | .0087 | .05 | .0009 |
| .6 | .0105 | .06 | .0010 |
| .7 | .0122 | .07 | .0012 |
| .8 | .0140 | .08 | .0014 |
| .9 | .0157 | .09 | .0016 |

1 radian $= 180°/\pi = 57°.29578$

$1° = \pi/180 = 0.0174533$ radians.

### Multiples of 360° or $2\pi$ radians

| | | |
|---|---|---|
| 1 | 360° | 6.28319 |
| 2 | 720° | 12.56637 |
| 3 | 1080° | 18.84956 |
| 4 | 1440° | 25.13274 |
| 5 | 1800° | 31.41593 |
| 6 | 2160° | 37.69911 |
| 7 | 2520° | 43.98230 |
| 8 | 2880° | 50.26548 |
| 9 | 3240° | 56.54867 |
| 10 | 3600° | 62.83185 |

## From Radians into Degrees

| | | | | | |
|---|---|---|---|---|---|
| 0.00 | 0°.00 | 0.50 | 28°.65 | 1.00 | 57°.30 |
| .01 | 0°.57 | .51 | 29°.22 | .01 | 57°.87 |
| .02 | 1°.15 | .52 | 29°.79 | .02 | 58°.44 |
| .03 | 1°.72 | .53 | 30°.37 | .03 | 59°.01 |
| .04 | 2°.29 | .54 | 30°.94 | .04 | 59°.59 |
| 0.05 | 2°.86 | 0.55 | 31°.51 | 1.05 | 60°.16 |
| .06 | 3°.44 | .56 | 32°.09 | .06 | 60°.73 |
| .07 | 4°.01 | .57 | 32°.66 | .07 | 61°.31 |
| .08 | 4°.58 | .58 | 33°.23 | .08 | 61°.88 |
| .09 | 5°.16 | .59 | 33°.80 | .09 | 62°.45 |
| 0.10 | 5°.73 | 0.60 | 34°.38 | 1.10 | 63°.03 |
| .11 | 6°.30 | .61 | 34°.95 | .11 | 63°.60 |
| .12 | 6°.88 | .62 | 35°.52 | .12 | 64°.17 |
| .13 | 7°.45 | .63 | 36°.10 | .13 | 64°.74 |
| .14 | 8°.02 | .64 | 36°.67 | .14 | 65°.32 |
| 0.15 | 8°.59 | 0.65 | 37°.24 | 1.15 | 65°.89 |
| .16 | 9°.17 | .66 | 37°.82 | .16 | 66°.46 |
| .17 | 9°.74 | .67 | 38°.39 | .17 | 67°.04 |
| .18 | 10°.31 | .68 | 38°.96 | .18 | 67°.61 |
| .19 | 10°.89 | .69 | 39°.53 | .19 | 68°.18 |
| 0.20 | 11°.46 | 0.70 | 40°.11 | 1.20 | 68°.75 |
| .21 | 12°.03 | .71 | 40°.68 | .21 | 69°.33 |
| .22 | 12°.61 | .72 | 41°.25 | .22 | 69°.90 |
| .23 | 13°.18 | .73 | 41°.83 | .23 | 70°.47 |
| .24 | 13°.75 | .74 | 42°.40 | .24 | 71°.05 |
| 0.25 | 14°.32 | 0.75 | 42°.97 | 1.25 | 71°.62 |
| .26 | 14°.90 | .76 | 43°.54 | .26 | 72°.19 |
| .27 | 15°.47 | .77 | 44°.12 | .27 | 72°.77 |
| .28 | 16°.04 | .78 | 44°.69 | .28 | 73°.34 |
| .29 | 16°.62 | .79 | 45°.26 | .29 | 73°.91 |
| 0.30 | 17°.19 | 0.80 | 45°.84 | 1.30 | 74°.48 |
| .31 | 17°.76 | .81 | 46°.41 | .31 | 75°.06 |
| .32 | 18°.33 | .82 | 46°.98 | .32 | 75°.63 |
| .33 | 18°.91 | .83 | 47°.56 | .33 | 76°.20 |
| .34 | 19°.48 | .84 | 48°.13 | .34 | 76°.78 |
| 0.35 | 20°.05 | 0.85 | 48°.70 | 1.35 | 77°.35 |
| .36 | 20°.63 | .86 | 49°.27 | .36 | 77°.92 |
| .37 | 21°.20 | .87 | 49°.85 | .37 | 78°.50 |
| .38 | 21°.77 | .88 | 50°.42 | .38 | 79°.07 |
| .39 | 22°.35 | .89 | 50°.99 | .39 | 79°.64 |
| 0.40 | 22°.92 | 0.90 | 51°.57 | 1.40 | 80°.21 |
| .41 | 23°.49 | .91 | 52°.14 | .41 | 80°.79 |
| .42 | 24°.06 | .92 | 52°.70 | .42 | 81°.36 |
| .43 | 24°.64 | .93 | 53°.29 | .43 | 81°.93 |
| .44 | 25°.21 | .94 | 53°.86 | .44 | 82°.51 |
| 0.45 | 25°.78 | 0.95 | 54°.43 | 1.45 | 83°.08 |
| .46 | 26°.35 | .96 | 55°.00 | .46 | 83°.65 |
| .47 | 26°.93 | .97 | 55°.58 | .47 | 84°.22 |
| .48 | 27°.50 | .98 | 56°.15 | .48 | 84°.80 |
| .49 | 28°.07 | .99 | 56°.72 | .49 | 85°.37 |
| 0.50 | 28°.65 | 1.00 | 57°.30 | 1.50 | 85°.94 |
| | | | | .51 | 86°.52 |
| | | | | .52 | 87°.09 |
| | | | | .53 | 87°.66 |
| | | | | .54 | 88°.24 |
| | | | | 1.55 | 88°.81 |
| | | | | .56 | 89°.38 |
| | | | | 1.57 | 89°.95 |
| | | | | 1.5708 | 90° |
| | | | | 3.1416 | 180° |
| | | | | 4.7124 | 270° |
| | | | | 6.2832 | 360° |

| | | | | | |
|---|---|---|---|---|---|
| 1. | 57°.30 | 0.001 | 0°.06 | 0.0001 | °.01 |
| 2. | 114°.59 | .002 | °.11 | .0002 | °.01 |
| 3. | 171°.89 | .003 | °.17 | .0003 | °.02 |
| 4. | 229°.18 | .004 | °.23 | .0004 | °.02 |
| 5. | 286°.48 | .005 | °.29 | .0005 | °.03 |
| 6. | 343°.77 | .006 | °.34 | .0006 | °.03 |
| 7. | 401°.07 | .007 | °.40 | .0007 | °.04 |
| 8. | 458°.37 | .008 | °.46 | .0008 | °.05 |
| 9. | 515°.66 | .009 | °.52 | .0009 | °.05 |
| 10. | 572°.96 | | | | |

log ($x$ in radians) = log ($x$ in degrees) + 0.2419—2

log ($x$ in degrees) = log ($x$ in radians) + 1.7581

# Condensed Table of Trigonometric Functions

| rad | Deg. | sin | tan | sec | vers | covers | csc | ctn | cos | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0000 | 0° | 0.0000 | 0.0000 | 1.000 | 0.0000 | 1.000 | ∞ | ∞ | 1.000 | 90° | 1.571 |
| .0175 | 1 | .0175 | .0175 | 1.000 | .0002 | 0.983 | 57.30* | 57.29* | 1.000 | 89 | 1.553 |
| .0349 | 2 | .0349 | .0349 | 1.001 | .0006 | .965 | 28.65* | 28.64* | 0.999 | 88 | 1.536 |
| .0524 | 3 | .0523 | .0524 | 1.001 | .0014 | .948 | 19.11* | 19.08* | .999 | 87 | 1.518 |
| .0698 | 4 | .0698 | .0699 | 1.002 | .0024 | .930 | 14.34* | 14.30* | .998 | 86 | 1.501 |
| 0.0873 | 5° | 0.0872 | 0.0875 | 1.004 | 0.0038 | 0.913 | 11.47* | 11.43* | 0.996 | 85° | 1.484 |
| .1047 | 6 | .1045 | .1051 | 1.006 | .0055 | .895 | 9.57* | 9.51* | .995 | 84 | 1.466 |
| .1222 | 7 | .1219 | .1228 | 1.008 | .0075 | .878 | 8.21* | 8.14* | .993 | 83 | 1.449 |
| .1396 | 8 | .1392 | .1405 | 1.010 | .0097 | .861 | 7.19* | 7.12* | .990 | 82 | 1.431 |
| .1571 | 9 | .1564 | .1584 | 1.012 | .0123 | .844 | 6.39* | 6.31* | .988 | 81 | 1.414 |
| 0.1745 | 10° | 0.1736 | 0.1763 | 1.015 | 0.0152 | 0.826 | 5.76* | 5.67* | 0.985 | 80° | 1.396 |
| .1920 | 11 | .1908 | .1944 | 1.019 | .0184 | .809 | 5.24 | 5.14 | .982 | 79 | 1.379 |
| .2094 | 12 | .2079 | .2126 | 1.022 | .0219 | .792 | 4.81 | 4.70 | .978 | 78 | 1.361 |
| .2269 | 13 | .2250 | .2309 | 1.026 | .0256 | .775 | 4.45 | 4.33 | .974 | 77 | 1.344 |
| .2443 | 14 | .2419 | .2493 | 1.031 | .0297 | .758 | 4.13 | 4.01 | .970 | 76 | 1.326 |
| 0.262 | 15° | 0.259 | 0.268 | 1.035 | 0.0341 | 0.741 | 3.86 | 3.73 | 0.966 | 75° | 1.309 |
| .279 | 16 | .276 | .287 | 1.040 | .0387 | .724 | 3.63 | 3.49 | .961 | 74 | 1.292 |
| .297 | 17 | .292 | .306 | 1.046 | .0437 | .708 | 3.42 | 3.27 | .956 | 73 | 1.274 |
| .314 | 18 | .309 | .325 | 1.051 | .0489 | .691 | 3.24 | 3.08 | .951 | 72 | 1.257 |
| .332 | 19 | .326 | .344 | 1.058 | .0545 | .674 | 3.07 | 2.90 | .946 | 71 | 1.239 |
| 0.349 | 20° | 0.342 | 0.364 | 1.064 | 0.0603 | 0.658 | 2.92 | 2.75 | 0.940 | 70° | 1.222 |
| .367 | 21 | .358 | .384 | 1.071 | .0664 | .642 | 2.79 | 2.61 | .934 | 69 | 1.204 |
| .384 | 22 | .375 | .404 | 1.079 | .0728 | .625 | 2.67 | 2.48 | .927 | 68 | 1.187 |
| .401 | 23 | .391 | .424 | 1.086 | .0795 | .609 | 2.56 | 2.36 | .921 | 67 | 1.169 |
| .419 | 24 | .407 | .445 | 1.095 | .0865 | .593 | 2.46 | 2.25 | .914 | 66 | 1.152 |
| 0.436 | 25° | 0.423 | 0.466 | 1.103 | 0.0937 | 0.577 | 2.37 | 2.14 | 0.906 | 65° | 1.134 |
| .454 | 26 | .438 | .488 | 1.113 | .1012 | .562 | 2.28 | 2.050 | .899 | 64 | 1.117 |
| .471 | 27 | .454 | .510 | 1.122 | .1090 | .546 | 2.20 | 1.963 | .891 | 63 | 1.100 |
| .489 | 28 | .469 | .532 | 1.133 | .1171 | .531 | 2.13 | 1.881 | .883 | 62 | 1.082 |
| .506 | 29 | .485 | .554 | 1.143 | .1254 | .515 | 2.06 | 1.804 | .875 | 61 | 1.065 |
| 0.524 | 30° | 0.500 | 0.577 | 1.155 | 0.1340 | 0.500 | 2.00 | 1.732 | 0.866 | 60° | 1.047 |
| .541 | 31 | .515 | .601 | 1.167 | .1428 | .485 | 1.942 | 1.664 | .857 | 59 | 1.030 |
| .559 | 32 | .530 | .625 | 1.179 | .1520 | .470 | 1.887 | 1.600 | .848 | 58 | 1.012 |
| .576 | 33 | .545 | .649 | 1.192 | .1613 | .455 | 1.836 | 1.540 | .839 | 57 | 0.995 |
| .593 | 34 | .559 | .675 | 1.206 | .1710 | .441 | 1.788 | 1.483 | .829 | 56 | .977 |
| 0.611 | 35° | 0.574 | 0.700 | 1.221 | 0.1808 | 0.426 | 1.743 | 1.428 | 0.819 | 55° | 0.960 |
| .628 | 36 | .588 | .727 | 1.236 | .1910 | .412 | 1.701 | 1.376 | .809 | 54 | .942 |
| .646 | 37 | .602 | .754 | 1.252 | .2014 | .398 | 1.662 | 1.327 | .799 | 53 | .925 |
| .663 | 38 | .616 | .781 | 1.269 | .2120 | .384 | 1.624 | 1.280 | .788 | 52 | .908 |
| .681 | 39 | .629 | .810 | 1.287 | .2229 | .371 | 1.589 | 1.235 | .777 | 51 | .890 |
| 0.698 | 40° | 0.643 | 0.839 | 1.305 | 0.234 | 0.357 | 1.556 | 1.192 | 0.766 | 50° | 0.873 |
| .716 | 41 | .656 | .869 | 1.325 | .245 | .344 | 1.524 | 1.150 | .755 | 49 | .855 |
| .733 | 42 | .669 | .900 | 1.346 | .257 | .331 | 1.494 | 1.111 | .743 | 48 | .838 |
| .750 | 43 | .682 | .933 | 1.367 | .269 | .318 | 1.466 | 1.072 | .731 | 47 | .820 |
| .768 | 44 | .695 | 0.966 | 1.390 | .281 | .305 | 1.440 | 1.036 | .719 | 46 | .803 |
| 0.785 | 45° | 0.707 | 1.000 | 1.414 | 0.293 | 0.293 | 1.414 | 1.000 | 0.707 | 45° | 0.785 |
| | | cos | ctn | csc | covers | vers | sec | tan | sin | Deg. | rad |

Interpolation at points marked (*) may be inaccurate. vers $x = 1 - \cos x$; covers $x = 1 - \sin x$.

## Constants

$\pi = 3.14159265$
$e = 2.71828183$

1 mile = 5280 ft.

30 mi. per hr. = 44 ft. per sec.

1 nautical mile = 6080.3 ft. = 1.1516 mi.

1 rod = 16½ ft.

1 acre = 160 sq. rods = 43560 sq. ft.

1 sq. mile = 640 acres

1 bushel (U. S.) = 2150.42 cu. in.

1 gallon (U. S.) = 231 cu. in.

1 gallon (British) = 277.463 cu. in.

1 pound av. = 7000 grains

Spec. grav. of mercury = 13.6

1 cu. ft. of water weighs 62.4 lbs.

1 cu. ft. dry air (32° F., 30 in.) weighs .0807 lbs.

Veloc. of sound in air = 1090 ft./sec.

Veloc. of light in vacuum = 186 000 mi./sec.

Earth's radii: 3963 mi., 3950 mi.

Earth's density (water = 1) = 5.5

Diameter of Sun, 866 000 mi., Moon, 2163 mi.

Mass (Earth = 1): Sun, 334 000; Moon, 0.0123

Distance of Sun, 93 000 000 mi., Moon, 240 000 mi.

1 meter = 39.37 in. = 3.2808 ft.
1 kilometer = 0.62137 mi.
1 hectare = 10000 sq. meters = 2.471 acres
1 cu. meter = 1.3079 cu. yds.
1 liter = 1000 cu. cm. = 0.2642 gal. (U. S.)
1 kg. = 2.2046 lbs. 1 gm. = 15.432 grains
1 kg./sq. cm. = 14.22 lbs./sq. in. = 0.968 atmos
1 atmo = 1.033 kg./sq. cm. = 760 mm. of Hg)
1 kilogram meter = 7.233 ft. lbs.
1 kilowatt = 1.341 horse-power
$g = 981 - 2.5 \sin^2$ (lat.) $= 977.99 + 5.22 \sin^2$ (lat.)

1 inch = 2.5400 cm. 1 ft. = 0.3048 m.
1 mile = 1.60935 kilometers
1 acre = 0.4047 hectares
1 cu. yd. = 0.76456 cu. meters
1 gallon (U. S.) = 3.785 liters
1 lb. = 0.4536 kg. 1 grain = 0.0648 gm.
1 lb./sq. in. = 0.0703 kg./sq. cm. = 0.680 atmos
(1 atmo = 14.70 lbs./sq. in. = 29.92 in. of Hg)
1 ft. lb. = 0.1383 kilogram meters
1 H. P. = 550 ft. lbs./sec. = 746 watts
$g = 32.2$ ft./sec.$^2$ $= 32.087 + 0.171 \sin^2$ (lat.)